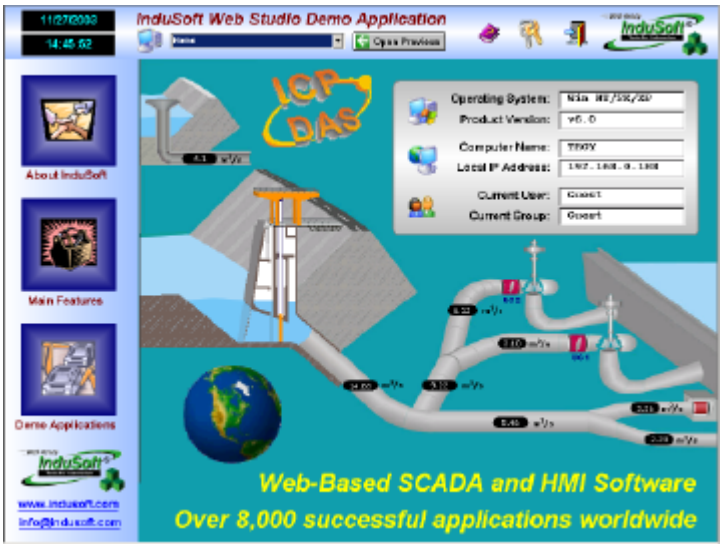
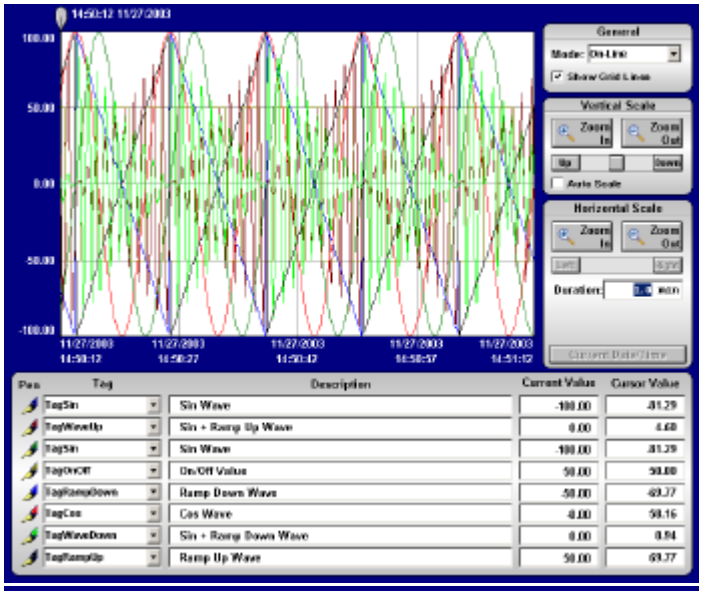
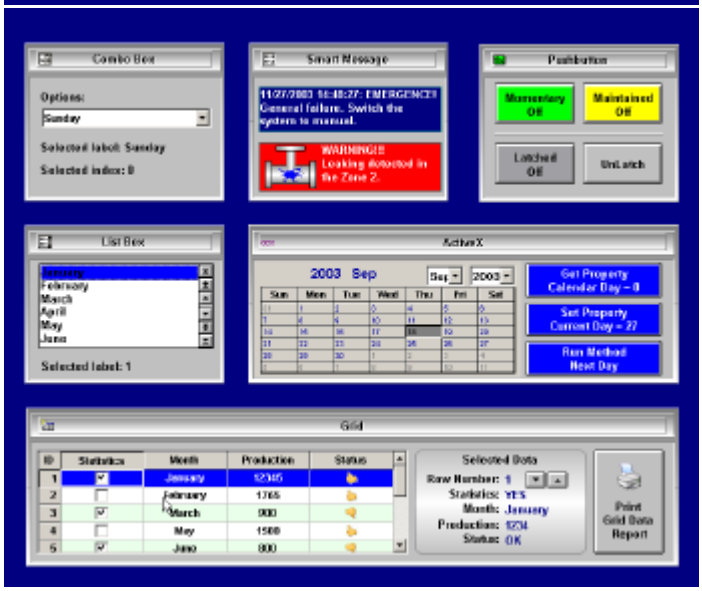


InduSoft Web Studio Getting Started Guide

Web-Ready InduSoft Tools for Automation







www.icpdas.com

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1. Welcome to InduSoft Web Studio

InduSoft Web Studio ™ (or *IWS*) is a powerful, integrated tool that exploits key features of Microsoft® Windows® NT/2000/XP and Windows® CE, and enables you to build full-featured *SCADA* (Supervisory Control And Data Acquisition) or *HMI* (Human-Machine Interface) applications for your Industrial Automation business.

1.1 Overview

This *InduSoft Web Studio Getting Started Guide* is intended for individuals using InduSoft Web Studio for the first time. This publication will help you quickly familiarize yourself with the basic functions of InduSoft Web Studio.

> **Note:**
> InduSoft assumes you are familiar with the Windows NT/2000/XP operating system. However, if you need assistance as you work, we suggest using the Help feature on the Windows desktop Start menu.

This Getting Started guide is divided into the following chapters:

- *This chapter* provides a brief overview of the InduSoft Web Studio product, including its main features, system requirements and product types.
- Chapter 2, ICPDAS solution for InduSoft Web Studio: Provides information about ICPDAS solution for InduSoft Web Studio.
- Chapter 3, Installing the Software: Explains how to install InduSoft Web Studio and CEView on your system.
- Chapter 4, Working with the IWS Interface: Describes all the elements of the IWS development environment; including menubars, toolbars, dialog boxes, buttons, menus, and so forth.
- Chapter 5, Working with Tags: Describes the procedures for creating and editing tags for the tags database; including a description of the proper syntax, and tag types.
- Chapter 6, Creating an IWS Application: Explains how to create and edit applications, objects, and screens. Also explains the procedure for testing your applications.
- Chapter 7, Configuring the I/O (DCON) Communication Driver: Explains how to install DCON driver and set DCON worksheet for testing communication of your applications.
- Chapter 8, Running the Web-Based Application: Explains how to start and run your Web-based applications.
- Chapter 9, Running Applications from a Remote Station: Explains how to run and manage applications remotely.
- Chapter 10, How to Register the Software License for IWS: Explains how to setup/upgrade the Software License of IWS for your developing/running environment.
- Chapter 11, Installing an InduSoft SoftKey License on the WinCon-8x39: Explains how to install/upgrade the CEView License for your WinCon-8x39 embedded controller.

1.2 About InduSoft Web Studio

InduSoft Web Studio applications consist of animated operator-interface screens, communication drivers (for PLCs and I/O protocols such as Modbus, DFS, Profibus, and so forth), tags database, and additional modules such as alarm monitors, logic, trend charts, recipes, schedulers, and security system.

IWS applications interface with industrial I/O systems and other Windows applications in the run-time environment using ODBC, DDE, OPC, or TCP/IP protocols. You can also operate the application through a standard Web browser (Internet Explorer or Netscape).

The product consists of two parts:

- The *development system* software, which runs on a desktop, laptop, or industrial PC running Windows NT/2000/XP.
- The *run-time system* software, which runs on any operator interface workstation running Windows NT/2000/XP or Windows CE.

> **Note:**
> The run-time system software for the Windows CE operating system (*CEView*) is usually pre-loaded on the HMI. If necessary, you can update the CEView version of the development system software by downloading the current version to the HMI or PDA.

You can run IWS applications on your development workstation or download it to a run-time station (through a serial or TCP/IP connection) and run the application using the IWS or CEView run-time software. The workstation processes scan data from connected devices according to parameters defined in the application and then react to, display, store, and upload the data.

1.3 Main Features

The InduSoft Web Studio product offers the following features and functions:

- Web interface that allows you to visualize screens in a Web browser (thin client) through the Internet/intranet and exchange data with the server by TCP/IP protocol
- Platform-independent application that allows you to run applications built with IWS to run under any current Microsoft platform (Windows NT/2000/XP and Windows CE)
- Online, remote application management and configuration (download/upload, commands, system and network diagnostics, and debugging)
- An integrated, Microsoft Windows® XP-like development environment with toolbars, dialogs, menus, and customizable toolbars
- A user-friendly screen editor that enables you to build application screens on the fly at runtime
- A library of more than 100 symbols and dynamic objects, such as:
  - Frames
  - Icons
  - Motors
  - Pipes
  - Meters and gauges
  - LED-style indicators
  - Text and numeric displays
  - Common controls
  - Sliders and switches
  - Pumps and valves
  - Pushbuttons
  - Vehicles
- Cross-reference tool to locate tags throughout the project
- Active-X object containers
- Full-featured objects and dynamics with customizable object properties such as bar graphs, color, resizing, position, rotation, hide/unhide, commands, hyperlinks, and text input/output
- An open architecture API that exchanges tag values with external software products and is Microsoft.NET architecture-compliant
- Merges modular worksheets and screens into other applications easily
- Screen and object password-protected run-time security (256 levels)
- OPC Client and Server modules with an integrated OPC Browser, DDE Client and Server modules, and TCP/IP Client and Server modules (that exchange tag values and configure redundancy systems)

- More than 150 communication drivers for different devices (such as PLCs) from manufacturers such as Allen-Bradley, Siemens, GE-Fanuc, as well as standard protocols such as MODBUS RTU/ASCII, DeviceNet, Profibus, Interbus, and more
- Logical expressions and scripting language with more than 200 functions
- Online/historical alarms and trends, and recipe/report builders (text, XML, or RTF format–ASCII or UNICODE)
- Event scheduler (based on date, time, or tag conditions)
- Translation editor to translate applications into different languages; switching between languages during run-time
- Database Spy window (local and remote) to monitor/force tag values and execute functions
- LogWin module (local and remote) to record DDE, OPC, and TCP/IP transactions, activate modules, trace tags, and so forth
- A powerful and flexible tag database with Boolean, Integer, Real, and String tags, array tags, classes, and indirect tag-pointers
- Integrates fully with PC-based control packages (imports tags database) such as ASAP, ISaGRAF, SteepleChase, and Think&Do
- Dial-up functions to trigger, monitor, and hang up dial-up connections with remote station RAS Servers
- Functions to send email automatically from IWS (or CEView)

> **Note:**
> IWS provides different product types (for example Local Interface and Control Room) for each level of application responsibility. However, IWS does not support some features in certain product types (such as CEView).

1.4 System Requirements

To develop and run applications with IWS, you must install the following hardware and software:

- IBM-compatible computer with an Intel® Pentium II-compatible processor or higher
- Windows NT/2000/XP operating system for development
- Windows NT/2000/XP or Windows CEv3.00 or Windows CE.NET operating system for runtime
- Minimum of 128MB random-access memory (*RAM*); *256MB or higher recommended*
- MS Internet Explorer 4.0 or higher
- Minimum of 150MB free hard disk space (required for the program without any application files); *300MB is recommended*
- 3.5-inch floppy drive
- CD-ROM drive (This drive can be on a different computer.)
- Standard keyboard with function keys F1 through F12
- Parallel printer port (*optional*)
- 100% IBM-compatible VGA or SVGA display adapter with 32MB Video RAM (*VRAM*) (*optional for runtime when running Web-based applications*)
- Microsoft-compatible pointing device (such as a mouse, trackball, or touch-screen)
- One or two COM ports and adapters for downloading applications (*optional*)
- Ethernet connection for downloading applications (*optional*)

> **Note:**
> IWS is UNICODE-compliant and will not run on a non-UNICODE-compliant operating system (such as Windows 9x/ME). You can, however, run the Web Thin Clients of IWS applications on non-UNICODE operating systems.

1.5 InduSoft Web Studio v6.0 – Product Types

InduSoft Web Studio v6.0	InduSoft-CE150R (CEView Lite)	InduSoft-NT150R (Lite Interface)	InduSoft-CE300D\R (CEView Lite Plus)	InduSoft-NT300D\R (NTView PRO)	InduSoft-CE1500D\R (CEView Standard)	InduSoft-NT1500D\R (Local Interface)	InduSoft-CE4000D\R (CEView PRO)	InduSoft-NT4000D\R (Operator Workstation)	InduSoft-NT64000D\R (Control Room)	InduSoft-NT512000D\R (Advanced Server)
Run Time Operating System	CE	2K/XP	CE	2K/XP	CE	2K/XP	CE	2K/XP	2K/XP	2K/XP
Development Operating System	2K/XP	2K/XP	2K/XP	2K/XP	2K/XP	2K/XP	2K/XP	2K/XP	2K/XP	2K/XP
Communication Drivers	1	1	1	1	3	3	5	5	8	Unlimited
Application tags	150	150	300	300	1,500	1,500	4000	4,000	64,000	512,000
Elements per array	150	150	256	256	256	256	512	512	1,024	16,348
Members per class	32	32	32	32	32	32	32	32	64	512
Translation Tool	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Security System	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Email interface (SMTP)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dial-Up interface (RAS)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PC Based Control Integration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Alarm Online / History	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trend Online / History	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Recipe (ASCII / XML)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Report (ASCII / RTF)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ODBC	✗	✓	✗	✓	✗	✓	✗	✓	✓	✓
DDE Client / Server	✗	✓	✗	✓	✗	✓	✗	✓	✓	✓
OPC Client / Server	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TCP/IP Client / Server	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Scripting Module (Math)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Events Modules (Scheduler)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Group of screens	✗	✓	✗	✓	✗	✓	✗	✓	✓	✓
ActiveX container	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Static objects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bitmaps objects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Picture (Paste Link)	✗	✓	✗	✓	✗	✓	✗	✓	✓	✓
Command dynamic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Text I/O (data Input/Output)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bargraph dynamic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Change Color dynamic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hyperlink dynamic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Position & Show/Hide dynamic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Resizing dynamic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rotation dynamic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
List box	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Combo box	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Grid	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Smart Message	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pushbutton	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
APIs Toolkits support	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

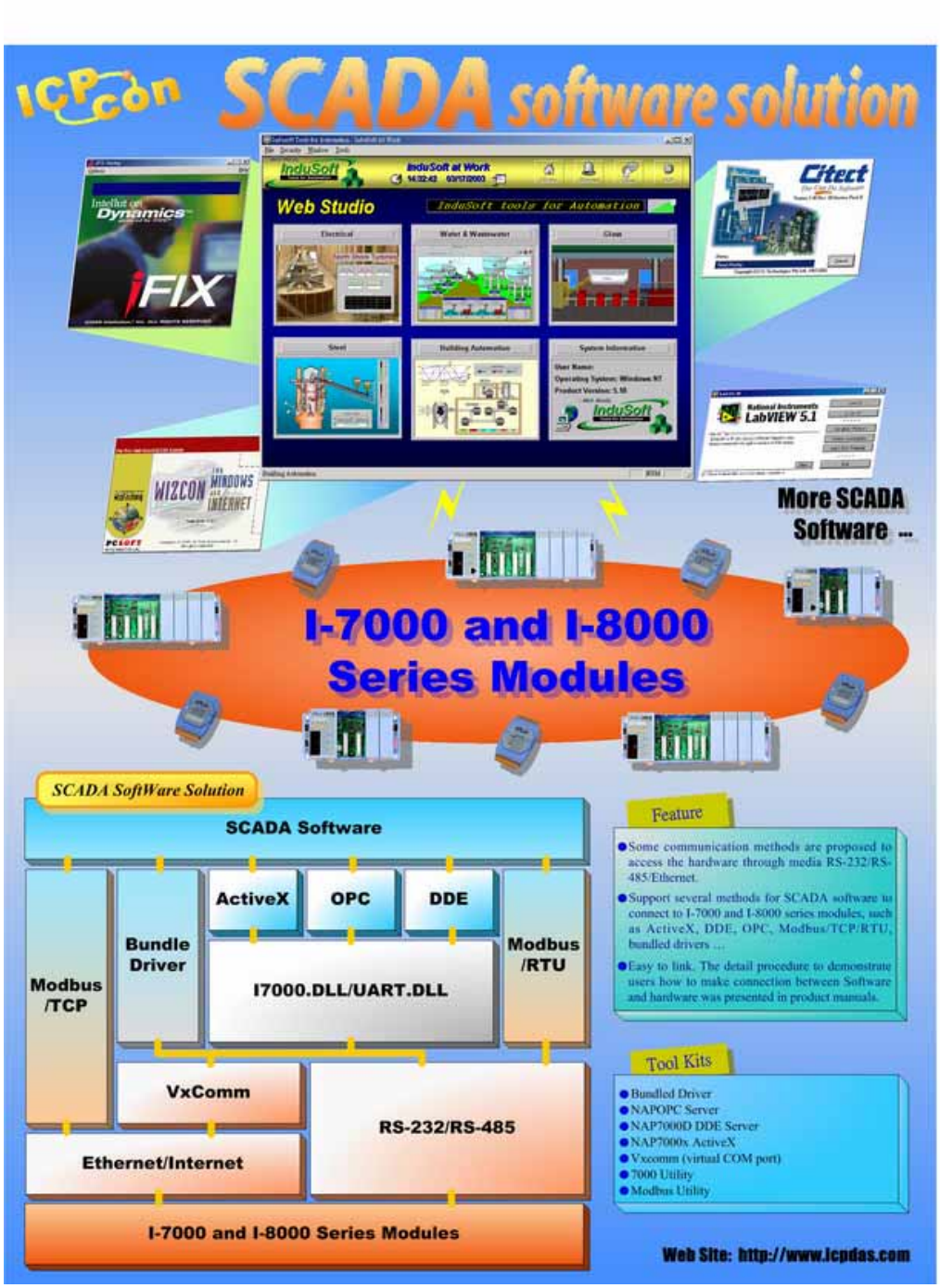
✓=Supported ×=NOT supported ×=NOT supported by the operating system

Note:

- The “Unlimited” term refers only to software capabilities. The hardware restrictions must be considered when implementing the project.
- The tag count covers ALL tags configured in the application, whether used for communication or not. Additionally, each position of array tags and each member of a class type tag is included in the tag limitation.
- The server station (STUDIO or CEVIEW) supports one Web Thin Client by default (free). The license installed in the Server can be upgraded to support more than one Web Thin Client connected to it, simultaneously that implies in an additional cost in the Server license. The options for Web Thin Clients simultaneously supported by the Server are shown below:
  - Server = STUDIO (WinNT/2000/XP): 1 (default), 2, 4, 8, 16, 32, 64, 128 or 256 Web Thin Clients.
  - Server = CEVIEW (WinCE): 1 (default), 2, 4 or 8 Web Thin Clients.

2. ICPDAS solution for InduSoft Web Studio

InduSoft Web Studio is a powerful, integrated collection of automation tools that includes all the building blocks needed to develop human machine interfaces (HMIs), supervisory control and data acquisition (SCADA) systems, and embedded instrumentation and control applications. InduSoft Web Studio can run in native Windows NT, 2000, XP and CE environments and conforms to industry standards such as Microsoft DNA, OPC, DDE, ODBC, XML, SOAP and ActiveX. For more information please visit: http://www.icpdas.com/.



The Above figure illustrates the integration application for ICP DAS products and InduSoft Web Studio. InduSoft provides the stability and reliability software system for HMI, SCADA and Web solution. And ICP DAS supplies the good performance hardware with suitable firmware or controller. From the demonstration, ICP DAS proposes remote I/O, I-7000, I-8000, I-87K series modules and embedded controller, such as ISaGRAF based products and I-7188 series. Furthermore, ICPDAS also provides several of the standard Industry communication tool kits and software kits, such as OPC, DDE, Modbus, bundled driver, NAP7000D, NAPOPC, 7000Utility, …, through Rs-232/Rs-485/Ethernet media to help user to easily communicate and control the remote or embedded modules in various application system. On the other hand, InduSoft provides a software platform such that users can easily build a small to large SCADA system within a short time. Eventually, the cooperation of ICPDAS and InduSoft can provide an easy application solution for system integrator even for simple to complex system.

Note that this manual will focus on communication setting demonstration for Software and hardware. Based on the application structure, we will show five solutions for InduSoft Web Studio, which are Bundled driver, OPC server, DDE server, Modbus TCP, ISaGRAF Soft PLC solution. Firstly, the Bundled driver solution for InduSoft will be presented in section 1. Section 2 and 3 will introduce the OPC and DDE server solution. Modbus TCP is the international communication protocol for field bus control system. Therefore, this Modbus TCP solution for InduSoft will be discussed in section 4. Finally, ISaGRAF Soft PLC solution for InduSoft, which is based on Modbus RTU and TCP, will also be established in section 5. In addition, every solution only gives a simple example for InduSoft Web Studio how to connect to hardware system. If users need to know more knowledge for how to use InduSoft Web Studio SCADA design skill, please refer to the technique reference manual of InduSoft Web Studio software.

> **Notes:**
> For more detailed Information about ICPDAS solution, please refer to ICPDAS solution for InduSoft Web Studio manual. Users can get the manual from the path CD:\ICPDAS\DOC\InduSoft_solution.pdf on CD-ROM of Indusoft Web Studio, or at http://www.icpdas.com.tw/products/software/indusoft/indusoft.htm.

3. Installing the Software

This chapter provides instructions for installing, starting, and uninstalling InduSoft Web Studio and CEView. The information is organized as follows:

- Installing InduSoft Web Studio: Explains how to install InduSoft Web Studio on your computer.
- Starting InduSoft Web Studio: Explains how to run InduSoft Web Studio.
- Installing CEView Software: Explains how to install CEView on your computer.
- Uninstalling InduSoft Web Studio: Explains how to uninstall InduSoft Web Studio and CEView.

3.1 Installing InduSoft Web Studio

InduSoft Web Studio (*IWS*) provides development tools for all InduSoft applications, and it runs on the Microsoft Windows NT/2000/XP operating systems.

You can install IWS from the InduSoft Web Studio installation CD-ROM or download the installation files from the InduSoft Web site at (*http://www.InduSoft.com*). For Windows CE applications, you use IWS to download CEView (run-time software) to the Windows CE HMI using a serial or TCP/IP link.

The IWS installation program automatically creates necessary directories, copies files to your hard drive, and creates the IWS icons in your desktop folder.

> **Notes:**
> You must have Administrator privileges on a Windows NT/2000/XP workstation to install InduSoft Web Studio.
> You must uninstall all previous versions of InduSoft Web Studio or install the newer version in a different directory. Also, you cannot install the same version of IWS in two different paths of the same computer.

Use the following procedure to install IWS from the CD-ROM:

1. Turn on the power to your development computer (Windows NT, 2000, or XP) and be sure that no other programs are running.
2. Insert the installation CD-ROM into the CD-ROM driver.

> **Notes:**
> A CD Browser window should display automatically. If not, you can start the program manually from Windows Explorer. Navigate to the **`D:\Installation`** directory (where *D* is your CD-ROM drive), and run the **`Setup.exe`** file.

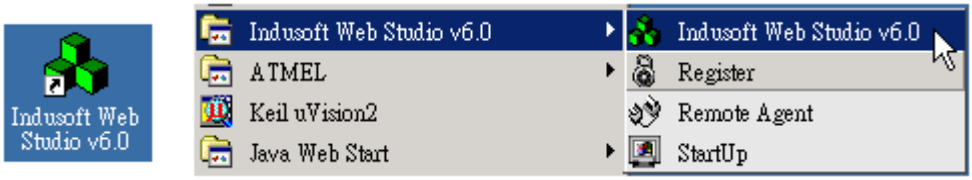
3. Double-click on the *Installation* folder, and then double-click on the InduSoft Web Studio icon to launch the *InstallShield® Wizard*.
4. Follow the instructions provided by the *InstallShield Wizard* to proceed with the installation.

5. When prompted to restart Windows, click the Yes, I want to restart my computer now radio button, then click OK.

> **Notes:**
> Refer to the *Product Licensing - User Guide* manual (available on you IWS CD-ROM) for instructions about licensing IWS and/or CEView.

3.2 Starting InduSoft Web Studio

To run IWS, double-click the InduSoft Web Studio shortcut on the desktop or select Start → Programs → InduSoft Web Studio v6.0→ InduSoft Web Studio v6.0



Starting IWS

> **Tip:**
> You can run the IWS development environment under any video setting; however, InduSoft recommends using a resolution of 800x600 (or higher) with more than 256 colors for a more pleasing environment. Application resolution (screen size) is independent of the operating system resolution.

3.3 Installing CEView Software

When installing IWS under Windows NT/2000/XP the CEView runtime files are stored in the following folder:

<InduSoft Web Studio Folder>`\Redist\<`*WinCE version*`>\<`*Processor Type*`>\`

Where:

- ***<InduSoft Web Studio Folder>*** is the installation directory chosen during installation (**`C:\Program Files\InduSoft Web Studio v6.0`** is the default installation directory).
- ***<Processor Type>*** is the processor platform. InduSoft provides a CEView runtime for all processor platforms supported by the WinCE operating system (Arm, Mips, MipsFP, Pocket-Arm, Pocket-Mips, Pocket-SH3, PPC, SH3, SH4, Thumb, and x86).
- ***<WinCE version>*** is the Windows CE version (for example, WinCE300, WinCE400, and so forth).

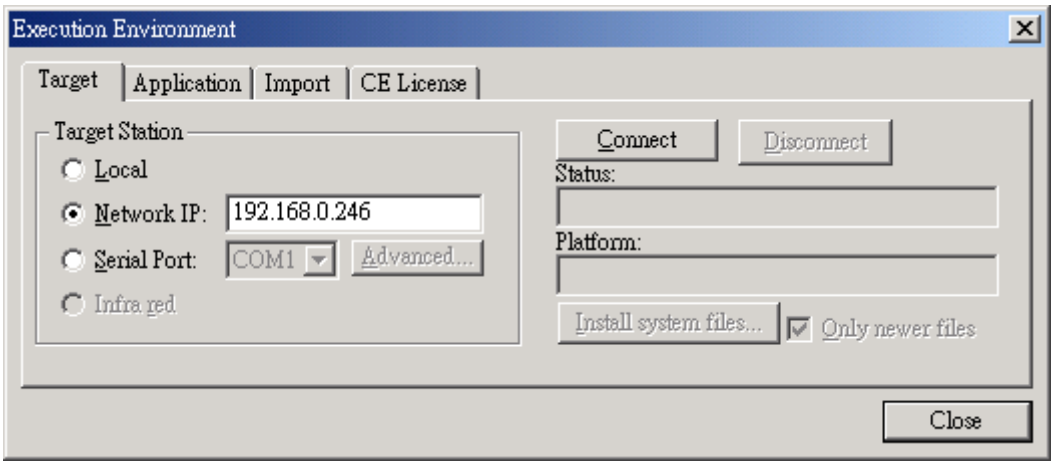
To install CEView, use the following steps:

1. Power-on the Windows CE device, and the *Remote Agent* dialog should launch automatically. If not, copy the **CESERVER.EXE** file from the **\<*InduSoft Web Studio Folder*>\Redist\<*WinCE version*>\<*Processor Type*>\BIN** directory of the Windows NT/2000/XP computer where you installed IWS.
2. Paste the file into the **\<*non-volatile*>** folder of your WinCE device and run it.

   > **Note:**
   > There are different ways to copy a file into a WinCE device (for example, you can map a shared folder from the Windows NT/2000/XP computer in the WinCE device or using *ActiveSync*). If you need assistance copying this file into the WinCE device, contact InduSoft technical support or the hardware manufacturer.

   After executing the **CESERVER.EXE** file, the *Remote Agent* dialog launches in the WinCE device.
3. Click the Setup button in the *Remote Agent* dialog and configure the link (serial or TCP/IP) to connect the WinCE device to the Windows NT/2000/XP computer.

   > **Note:**
   > For better performance, InduSoft recommends using a TCP/IP link between the WinCE device and the Windows NT/2000/XP computer to download and upload files.
4. Start IWS on the Windows NT/2000/XP computer.
5. Select Project → Execution Environment from the main menu bar.
6. When the *Execution Environment* dialog displays (see following figure), select a connection type (Network IP or Serial Port) and configure its settings (for example, COM Port or IP Address).



Execution Environment Dialog Box

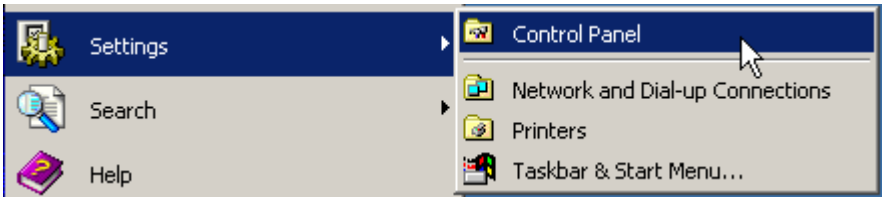
7. Click the Connect button to connect IWS to the WinCE device.
8. Click the Install System Files button from the *Execution Environment* window (*Target* tab) to download the CEView files to the WinCE device.

3.4 Uninstalling InduSoft Web Studio

If you must remove IWS from your system, follow these instructions:

> **Caution**:
> Before uninstalling IWS, be sure to back-up any files you might need later into the ...\ **InduSoft Web Studio v6.0\Projects** folder. Also, be sure you have the current (or newest) version of the IWS installation CD-ROM or diskettes so you can re-install the software again.
> *You will lose the product softkey license when you uninstall IWS.*

1. From the *Windows* taskbar, select Start → Settings → Control Panel to open the Control Panel.



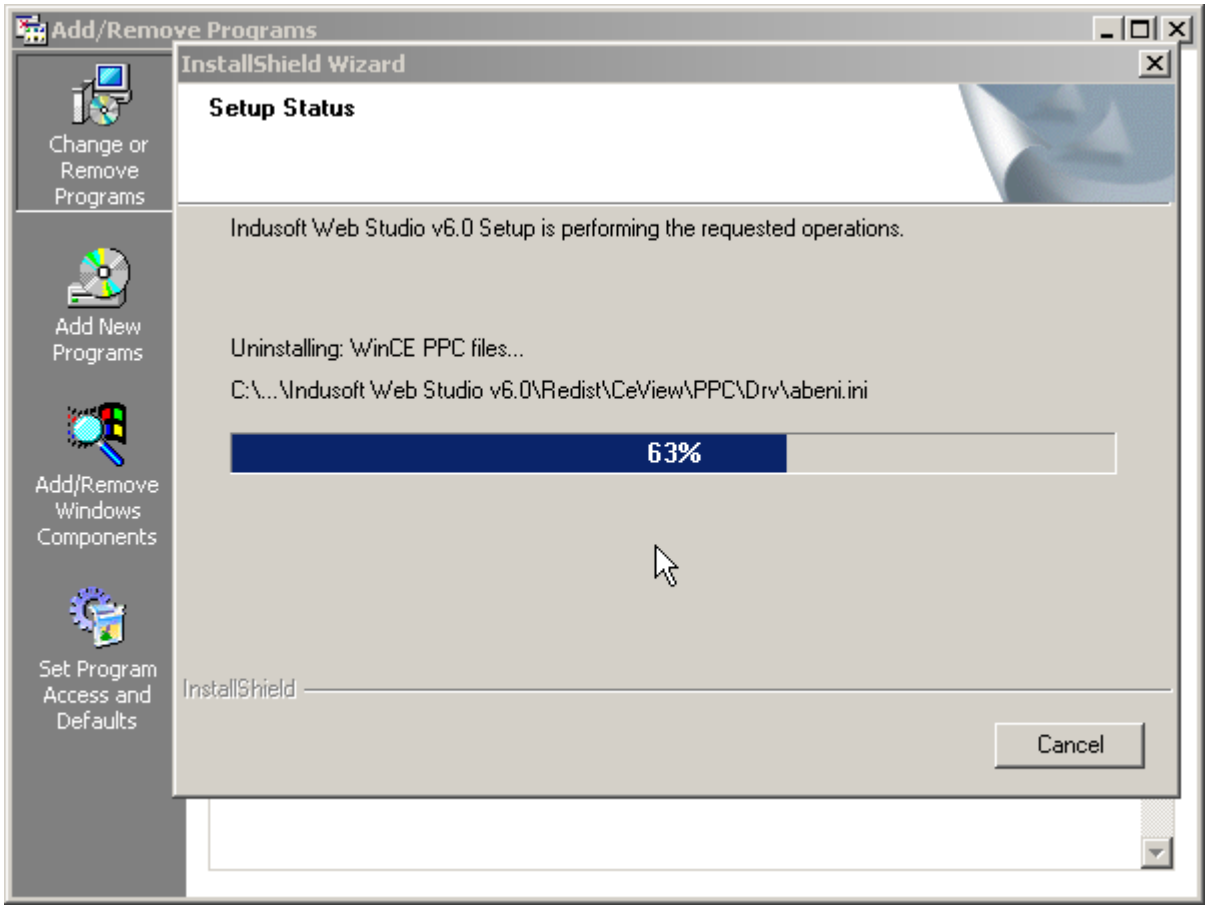
Opening the Control Panel

2. Double-click on the Add/Remove Programs icon () in the *Control Panel* window.

3. When the *Add/Remove Programs Properties* dialog displays (see figure), select InduSoft Web Studio v6.0 from the list and click the Add/Remove... button.

4. When the *Confirm File Deletion* dialog displays, click the Yes button.

   The *Uninstall Shield Wizard* and the *Remove Programs from Your Computer* dialogs display.



Removing the Program

5. When the Uninstall successfully completed message displays and the OK button becomes active, click OK. Verify that IWS is no longer listed in the *Add/Remove Programs Properties* dialog.

6. Click the Cancel button or the close button (), to close the *Add/Remove Programs Properties* dialog, and then close the Control Panel.

7. Open the *Windows Explorer* and browse to the directory containing the *InduSoft Web Studio* directory.

8. Verify that all of the IWS files and folders were deleted. (You can manually delete any that remain.)

> **Note:**
> The uninstall tool should not delete any files that you created or modified in the ...\ **InduSoft Web Studio v6.0\Projects** folder.

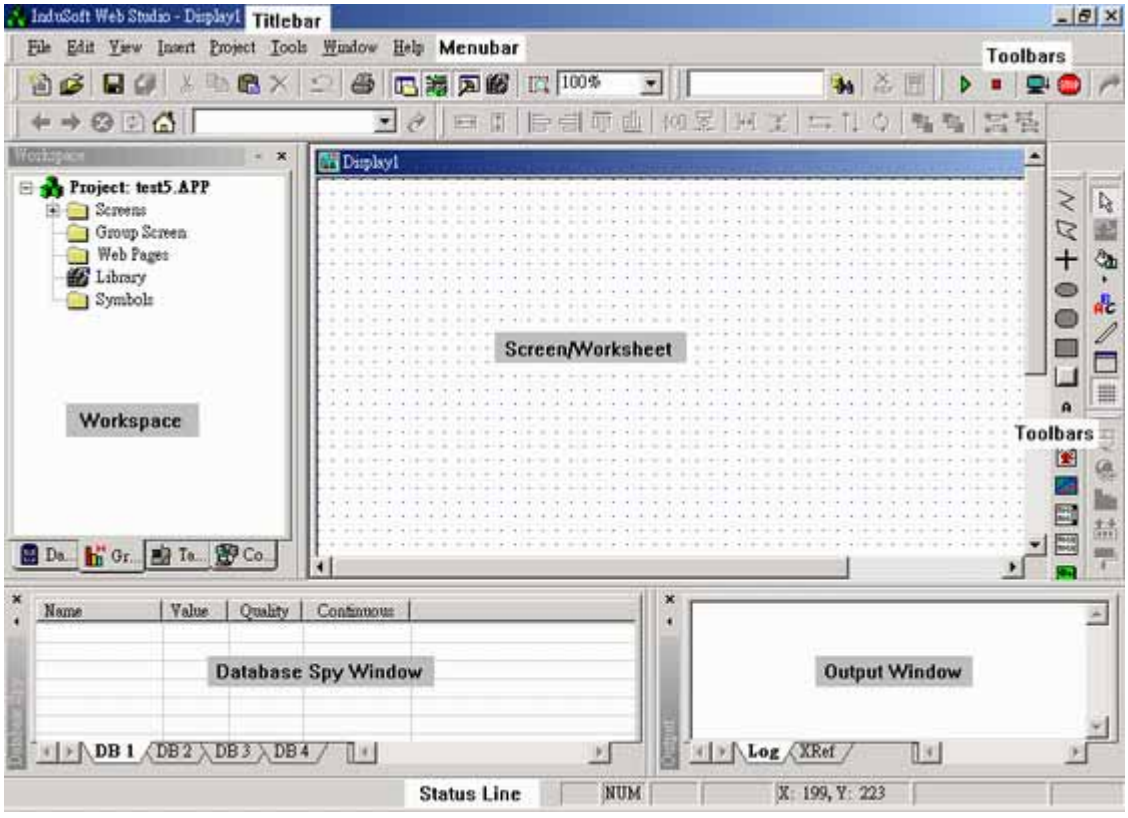
4. Working with the IWS Interface

This chapter describes the InduSoft Web Studio *development environment* (interface). The information in this chapter is organized as follows:

- Overview: Provides a brief description of the tools and interfaces that make up the IWS development environment.
- Title Bar: Describes the title bar.
- Status Bar: Describes the status bar.
- Menu Bar: Describes the different menu options that you can access from the IWS main menu bar.
- Toolbars: Describes the IWS toolbars.
- Workspace: Describes the IWS Workspace.

4.1 Overview

InduSoft Web Studio uses standard, Windows-like tools and interfaces to make the product user-friendly. IWS also provides an integrated, unique development environment (see figure) for easy access to tools and information.



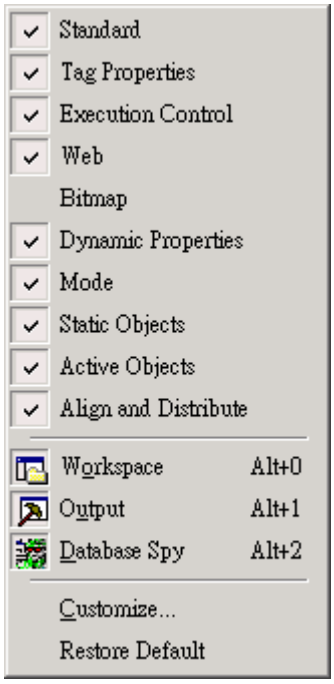
InduSoft Web Studio Development Environment

The development environment consists of the following basic areas:

- Title Bar: Indicates the active screen or worksheet
- Status Bar: Provides quick access to actual information
- Menu Bar: Contains the main product options and controls, which you can easily access using the cursor or your keyboard keys
- Auxiliary Toolbars: Provide shortcuts to the main commands used in the development environment
- Displays Building Toolbars: Contain features and tools used to create or edit objects and dynamics in the application screens
- Workspace: Provides tree-view control from which you can access project worksheets and screens
- Database Spy Window: Provides a debugging tool, which you can use to monitor and force tags and to execute functions
- Output Window: Displays debugging messages
- Displays / Worksheets: Provides an area where you can edit screens and worksheets

> **Note:**
> The preceding figure shows the development environment areas and windows in their default position. You can customize this environment as needed by changing the position of the areas.

You can *right*-click the mouse almost anywhere inside the development environment to display a pop-up menu (similar to the following figure), relating to the context of where you clicked.



Sample IWS Pop-Up Menu

4.2 Using the Title Bar

The title bar (located along the top of the IWS window) displays the InduSoft Web Studio icon, the product name, and the name of the active, open screen or worksheet (if any).



Typical IWS Title Bar

- The title bar also contains the following three buttons (from left to right):
- Minimize button (_): Click this button to minimize the IWS window.
- Resize / Maximize button (🗗 / 🗖): Click the button to toggle between the two options,
- Resize tiles the IWS window
- Maximize maximizes the IWS window to fill your computer screen
- Exit (or Close) button (✕): Click this button to automatically save the database then close IWS. If you modified any screens or worksheets, IWS prompts you to save your work. This button function is similar to the Exit command on the File menu.

> **Note:**
> Closing the development environment does not close the IWS run-time tasks. To close your run-time tasks, click the Stop icon on the *Execution* toolbar or select Project → Stop Application option from the main menu bar.

4.3 Reading the Status Bar

The status bar (located along the bottom of the IWS window) contains fields used to identify tool-bar buttons and provide information about the active screen (if any).



Sample Status Bar

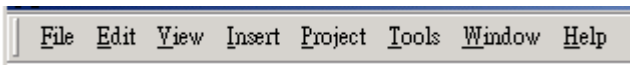
The fields are as follows (from left to right):

- Hint field: Provides a short description of any toolbar button or display object touched by the cursor.
- Caps Lock field: Indicates whether the keyboard Caps Lock key is on (*CAP*) or off (*empty*).
-
- Num Lock field: Indicates whether the keyboard Num Lock key is on (*NUM*) or off (*empty*).
- Scroll Lock field: Indicates whether the keyboard Scroll Lock key is on (*SCRL*) or off (*empty*).
- ID field: Displays the ID number of a selected screen object.
- Screen Coordinate field: Displays the current location of the cursor (or pointer) on the active screen. When you select a screen object, this field displays the object's coordinates in the top-left corner. Where: ***X*** is the number of pixels from the left edge of the screen and ***Y*** is the number of pixels from the top of the screen.
- Object Size field: Displays the size (in pixels) of a selected object, where ***W*** is the width and ***H*** is the height.
- No DRAG field: Indicates whether dragging is disabled (*No DRAG*) or enabled (*empty*) in the active screen.
  You might want to disable dragging to change the object properties of an object without moving it from its current location.

> **Tip:**
> You can enable/disable dragging by pressing Ctrl+D. Also, you can click on any object and use the arrow keys on the keyboard to move objects on the screen, pixel by pixel.

4.4 Using the Menu Bar

The menu bar contains the following menus:



Main Menu Bar

- File: Contains options that enable you to create, open, close, save, and print application projects and files, and allows you to close the IWS development environment.
- Edit: Contains options that enable you to edit your displays and worksheets by cutting, copying, pasting, formatting, and setting security levels. You can also undo edits, delete, search and replace elements in these displays/worksheets.
- View: Contains options that enable you to manage which tools and toolbars are visible in the development environment. This menu also provides shortcuts to the dialog boxes you open most frequently, enables you to customize your toolbars, restore defaults, open the libraries, zoom/unzoom, and set screen attributes.
- Insert: Contains options that enable you to create and configure a variety of application tags, tag classes, documents, drivers, users, security settings, screens, and ActiveX objects.
- Project: Contains options to execute applications locally and remotely, and provides links used to configure general application settings.
- Tools: Contains options that provide links to auxiliary tools.
- Window: Contains options that enable you to manage open displays and worksheets.
- Help: Contains options that link to information about IWS and InduSoft.

> **Note:**
> - The menu bar is dockable.
> - If you right-click on the menu bar, a pop-up menu displays. From this pop-up, you can restore the default location of the menu bar and toolbars.
> - You also can use this pop-up to hide toolbars and windows and to customize the development environment.

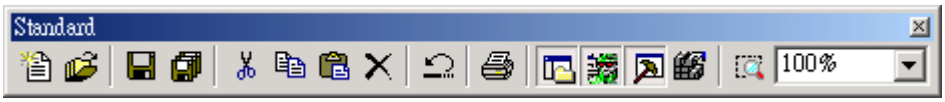
4.5 Using the Toolbars

IWS provides several toolbars containing icons (shortcuts) that enable you to perform different actions within the program. This section describes the function and default location of each tool-bar.

> **Notes:**
> All toolbars are dockable screen objects. You can move a toolbar to a different screen location by clicking on its title bar and dragging it to a new location.
>
> For more information about the toolbars discussed in this section, see the *InduSoft Web Studio Users Guide and Technical Reference Manual.*

The following toolbars contain general-purpose tools, and they are located across the top of the workspace, just below the menu bar by default:

- Standard toolbar: Allows you to perform general actions, such as file management and printing functions.



Standard Toolbar

- Tag Properties toolbar: Allows you to create, locate, and access different tags and their properties.



Tag Properties Toolbar

- Execution Control toolbar: Allows you to execute and manage an application locally or from a remote location.



Execution Control Toolbar

- Web toolbar: Allows you to open HTML files.



Web Toolbar

- Align and Distribute toolbar: Allows you to edit screen objects.



Align and Distribute Toolbar

The following toolbars contain screen-editing tools. These toolbars are located along the right side of the interface window by default and they are enabled only while you are editing graphic screens:

- Mode toolbar: Allows you to edit your screens.



Mode Toolbar

- Bitmap toolbar: Allows you to access the bitmap screen editor tools. (This toolbar is available only when the *Background Picture* layer is active. You enable the *Background Picture* layer in the *Screen Attributes* dialog box.)



Bitmap Toolbar

> **Note:**
> The *Bitmap* toolbar is hidden by default.

- Static Objects toolbar: Allows you to create polygons, rectangles, lines, and other objects for your screen.



Static Objects Toolbar

- Dynamic Properties toolbar: Allows you to apply dynamics to objects or a group of objects. Dynamics enable you to modify object properties on the fly (during runtime) according to tag values. Some dynamics also enable you to execute commands or insert values (set points) to the tags.



Dynamic Properties Toolbar

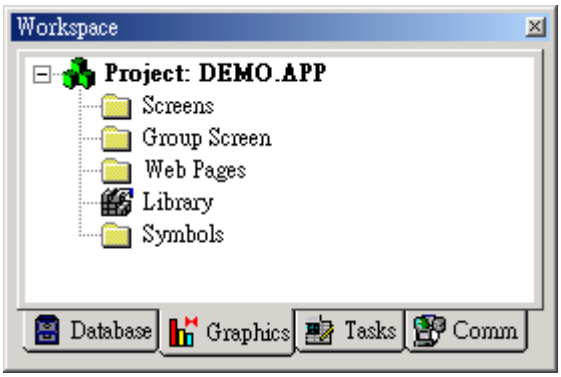
- Active Objects toolbar: Allows you to create dynamic objects. Active objects typically require more parameters than static objects and provide embedded dynamics.



Active Objects Toolbar

4.6 Using the Workspace

The IWS *Workspace* window is a user-friendly interface that enables you to quickly find and/or create any application component (tags, screens, worksheets, and so forth). Application components are organized in a tree-view with each one having its own icon and customized description. You can move, resize, or hide the *Workspace* window.



The IWS Workspace

The *Workspace* window is divided into four tabs, as follows:

- Database tab: Provides access to all tags in the application and security system components. This tab includes the following folders:
  - *Application Tags*
  - *Classes*
  - *Shared Database*
  - *Internal Tags*

- *Security*

- Graphics tab: Provides access to all screens and symbols in the application. This tab includes the following folders and icons:
  - *Screens*
  - *Group Screen*
  - *Web Pages*
  - *Library*
  - *Symbols*

- Tasks tab: Provides access to all task worksheets in the application. This tab includes the following folders:
  - *Alarms*
  - *Trend*
  - *Recipes*
  - *Report*
  - *ODBC*
  - *Math*
  - *Scheduler*

- Comm tab: Provides access to all worksheets configured to establish communication with another device or software using available protocols. This tab includes the following folders:
  - *Drivers*
  - *OPC*
  - *TCP/IP*
  - *DDE*

> **Note:**
> You can right-click on all folders and components to open a menu relating to that folder or component.

5. Working with Tags

This chapter provides information needed to create and edit tags, including:

- Naming Tags and Tag Fields: Explains the required syntax for naming tags and tag fields.
- Working with Tag Folders: Explains the purpose of tag folders.
- Understanding the Tag Types: Describes the different tag types.
- Using Array Tags: Explains how to use array tags.
- Using Indirect Tags: Explains how to use indirect tags.

5.1 Naming Tags and Tag Fields

This section provides guidelines for naming *tags* (database location identifiers) and *tag fields* (a set of parameters inherent to each tag in the database). Applications use tag fields during run-time.

5.1.1 Tag Syntax

You must observe the following syntax guidelines when naming a tag:

- Use letters, numbers, and the underscore (_) character.
- *Do not* use the following characters:
- ` ~ ! @ # $ % ^ & * ( ) - = \ + \ [ ] { } < > ?
- Tag names must begin with a letter.
- Maximum tag length is 32 characters.
  Maximum class member length is 16 characters.
- Tag names must be unique—do not specify the same name for two different tags, unless you are creating an array tag and specify a unique index (see 5.1.4).
- Tag names are not case-sensitive (for readability however, we recommend using uppercase and lowercase characters. For example, use *TankLevel* instead of *tanklevel*).
- Tag names must be different from internal tag names and math functions.
  Some valid tag names include:
  - *Temperature*
  - *pressure1*
  - *count*
  - *x*

5.1.2 Tag Field Syntax

You can use the *Tag Properties* dialog (click the Tag Properties icon  located on the *Tag Properties* toolbar) to specify tag field parameters. To access a tag field you must use the following syntax:

***<TagName>->*<TagField>** (for example, **second->Max**)

You can access the following tag fields during runtime:

Tag Field Name	Description of Value Associated with Each Field	Tag Type Associated with Field				R=Read Only RW=Read+Write
		Boolean	Integer	Real	String	
Description	Description of tag configured in Tags database.	✓	✓	✓	✓	RW
Max	Maximum value that can be written to the tag at runtime.	✗	✓	✓	✗	RW
Min	Minimum value that can be written to the tag at runtime	✗	✓	✓	✗	RW
Quality	Tag quality (192=GOOD; 0=BAD). Updates every time tag receives the result of an expression or a value from a communication task (Driver or OPC). Invalid expressions (such as division by 0) or reading communication errors associated with tag, sets quality to BAD.	✓	✓	✓	✓	R
Size	Array Size. If the tag is not an array tag, returns the value 0.	✓	✓	✓	✓	R
TimeStamp	Records time and date when a tag changes value.	✓	✓	✓	✓	R
Unit	Brief description (up to 9 characters) of an engineering unit (such as Kg) for a tag value	✓	✓	✓	✓	RW
B0 … B31	Value (0 or 1) of any of the 32 bits (b0, b1, b2, … b31) of an integer tag. (B0: LSB B31: MSB).	✗	✓	✗	✗	RW
AlrStatus	Status (integer value) of any currently active alarms associated with a tag. Each bit of the integer value indicates a specific status: • Bit 0 (LSB): HiHi Alarm active • Bit 1: Hi Alarm active • Bit 2: Lo Alarm active • Bit 3: LoLo Alarm active • Bit 4: Rate Alarm active • Bit 5: Deviation+ Alarm active • Bit 6: Deviation- Alarm active For example: • If Tag->AlrStatus = 2, “Hi” alarm is active. • If Tag->AlrStatus = 3, “HiHi” and “Hi” alarms are active simultaneously. • If Tag->AlrStatus = 0, there are no active alarms For Boolean tags, only 1 (bit 1), 4 (bit 2) or 16 (bit 4) values are returned.	✓	✓	✓	✗	R

Ack	Specifies whether alarms associated with the tag require acknowledgement. This field has only two possible values: • 0: Alarms do not require acknowledgment • 1: At least one alarm requires acknowledgment	✓	✓	✓	✗	RW
AlrDisable	Specifies whether alarms associated with a tag will become active. This field has only two possible values: • 0: Enables alarm and when an alarm condition occurs, the alarm becomes active. • 1: Disables alarm so that even if an alarm condition occurs, the alarm will not become active.	✓	✓	✓	✗	RW
HiHi	• If 0, HiHi alarm is inactive. • If 1, HiHi alarm is active.	✗	✓	✓	✗	R
Hi	• If 0, Hi alarm is inactive. • If 1, Hi alarm is active.	✓	✓	✓	✗	R
Lo	• If 0, Lo alarm is inactive. • If 1, the Lo alarm is active.	✓	✓	✓	✗	R
LoLo	• If 0, LoLo alarm is inactive. • If 1, the LoLo alarm is active.	✗	✓	✓	✗	R
Rate	• If 0, Rate alarm is inactive. • If 1, the Rate alarm is active.	✓	✓	✓	✗	R
Devp	• If 0, Dev+ alarm is inactive. • If 1, the Dev+ alarm is active.	✗	✓	✓	✗	R
Devm	• If 0, Dev- alarm is inactive. • If 1, Dev- alarm is active.	✗	✓	✓	✗	R
HiHiLimit	Limit value for HiHi alarm.	✗	✓	✓	✗	RW
HiLimit	Limit value for Hi alarm.	✗	✓	✓	✗	RW
LoLimit	Limit value for Lo alarm.	✗	✓	✓	✗	RW
LoLoLimit	Limit value for LoLo alarm.	✗	✓	✓	✗	RW
RateLimit	Limit value for Rate alarm.	✗	✓	✓	✗	RW
DevSetpoint	Set point value for Deviation alarms.	✗	✓	✓	✗	RW
DevpLimit	Limit value for Deviation+ alarm.	✗	✓	✓	✗	RW
DevmLimit	Limit value for Deviation- alarm.	✗	✓	✓	✗	RW

Note:
If the application tries writing a value outside the range specified in the Min and Max fields, the Tags Database will not accept the new value and writes a warning message in the *LogWin*. If you configure both Min and Max properties with the value 0 (zero), any value applied to the tag type can be written to the tag.

> **Caution:**
> You cannot use tag fields (such as Bit fields) to configure *Alarm* or *Trend* worksheets.

5.2 Working with Tag Folders

You can use tags as communication points with field equipment, results of calculations, alarm points, and so forth. In IWS, all tags are organized into folders on the *Database* tab according to their origin (application, internal, or shared). IWS also provides a folder for compound-tags, named *classes*.

The following is a description of the different IWS tag folders:

- Application Tags: User-defined tags created for screens, to read from and write to field equipment, for control, auxiliary tags to perform mathematical calculations, and so forth.
- Internal Tags: Tags predefined by IWS. Internal tags have predetermined functions (such as time, date, acknowledge alarms, storage of the logged-on user name and so forth). You cannot delete or modify these tags, but you can access their values from any IWS task.
- Shared Tags: Tags created in PC-based control software and imported into the IWS environment. You cannot edit shared tags in the IWS environment, but you can modify these tags using PC-based control software and then re-import the modified tags to update the IWS database. Consequently, you can configure shared tags for any IWS task just as any other tag.
- Classes: Structures that allow for high-level encapsulation in the application database. When you create a class-type tag, the tag contains a whole set of values rather than a single value. You create classes by grouping elements, called *members*. The maximum number of members for any class depends on the product specification.

5.3 Understanding the Tag Types

A tag can be one of the following types:

	Boolean: Boolean or digital variable (0 or 1).
	Integer: Integer number (positive, negative, or zero), equivalent to C-type long integer (4 bytes). For example: 0, 5, -200.
	Real: Real number (float) internally stored as a double word, equivalent to C-type double (8 bytes, for example: 2.12, -10.5).
	String: Character string up to 256 characters that contains letters, numbers, or special characters. For example: Recipe product X123, 01/01/90, *** On ***.
	Class: User-defined, compound tag.

The preceding icons (and their respective tag types) are located in folders on the *Database* tab.

5.4 Using Array Tags

IWS tags can consist of a single value or an array of values.

An *array tag* is a set of tags that all have the same name, but use unique indexes to differentiate between each tag (a matrix of *n* lines and *1* column). The maximum array size permitted will depend on the product specification.

You can use the following syntax to access an array tag:

<*ArrayTagName*>[*ArrayIndex*]

For example: **tank[1]**, **tank[2]**, **tank[3]**, and **tank[500]**.

> **Caution:**
> You can specify the maximum index for each array tag in the Size column of any datasheet. Specify size *n* to indicate that the array tag has positions from 0 to *n*.
> For example, if the size of TagA is *3*, the tag positions could be:
> **TagA[0]**, **TagA[1]**, **TagA[2]**, and **TagA[3]**.

In many cases, using array tags will simplify the configuration task. For example, if you want a display to monitor each tank, you could use array tags to configure a single display containing tags linked to any tank (using the **tk** tag as an index containing the tank number). For example,

pressure[tk], **temperature[tk]**, and **temperature[tk +1]**.

An array index can be a tag, a numeric value, or an expression with the arithmetic operator **+**.

> **Note:**
> When referring to an array having an index with the arithmetic operation **+**, you must use the following syntax:
> **<*ArrayTagName*>[<*NumValue1*> + <*NumValue2*>]**
> Where **<*NumValue1*>** and <***NumValue2***> can be integer tags or numerical constants. For example:
> **temperature[tk+2], temperature[tk+6],** or
> **temperature[TagA+ TagB]**

Using array tags in an IWS task can save a significant amount of application development time. For example, if you wanted tag points related to the temperature of four tanks, the conventional configuration method is:

- **temperature1 high temperature on tank 1**
- **temperature2 high temperature on tank 2**
- **temperature3 high temperature on tank 3**
- **temperature4 high temperature on tank 4**

Using array tags simplifies this task, as follows:

temperature[j] high temperature on tank {j}

> **Note:**
> When you create an ***n***-position array tag, the system creates ***n*+1** positions (from **0** to ***n***). For example: **tag_example[15]** with **Array Size=4** has five elements, **(start position=0, end position=4)**.

5.5 Using Indirect Tags

IWS supports indirect access to tags in the database. For example, consider a tag *X* of the string type. This tag can hold the name of any other tag in the database (in other words, this tag can provide a pointer to any other tag type, including the class type). The syntax for an indirect tag is straightforward:

`@<`***IndirectTagName***`>`

For example, assume that the ***X*** tag holds the **TEMP** string. Reading and/or writing to ***@X*** provides access to the value of the **TEMP** tag.

> **Note:**
> Any tag created as a string type is a potential indirect tag (pointer).

6. Creating an IWS Application

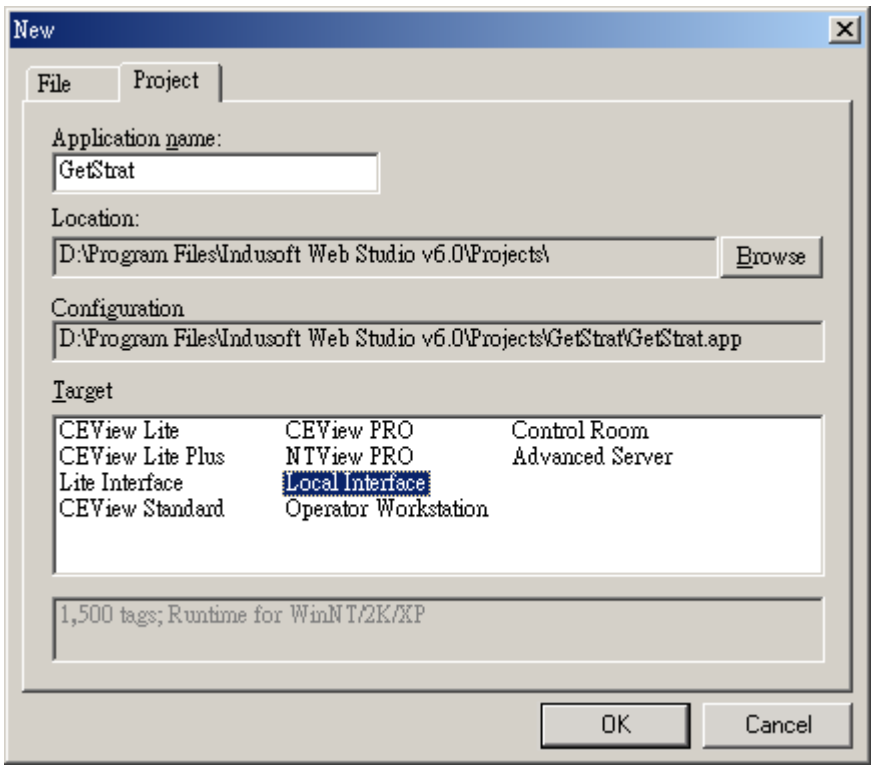
This chapter explains (using a step-by-step tutorial) how to create a working IWS application and how to install and configure an I/O driver.

- Creating a New Application: Explains how to create IWS applications.
- Specifying Project Settings: Explains how to specify various settings for your application.
- Creating Tags: Explains how to create new tags and add them to the IWS Tags database.
- Creating the Start-up Screen (main.scr): Explains how to create the main start-up screen.
- Creating the Synoptic Screen (synoptic.scr): Explains how to create a synoptic screen for your application.
- Configuring the I/O Communication Driver: Explains how to configure an I/O communication driver for your application.

6.1 Creating a New Application

Use the following procedure to create a new IWS application:

1. Select File → New from the InduSoft Web Studio main menu bar.
2. When the *New* dialog opens, click on the *Project* tab.



Select the Project Tab on the New Dialog Box

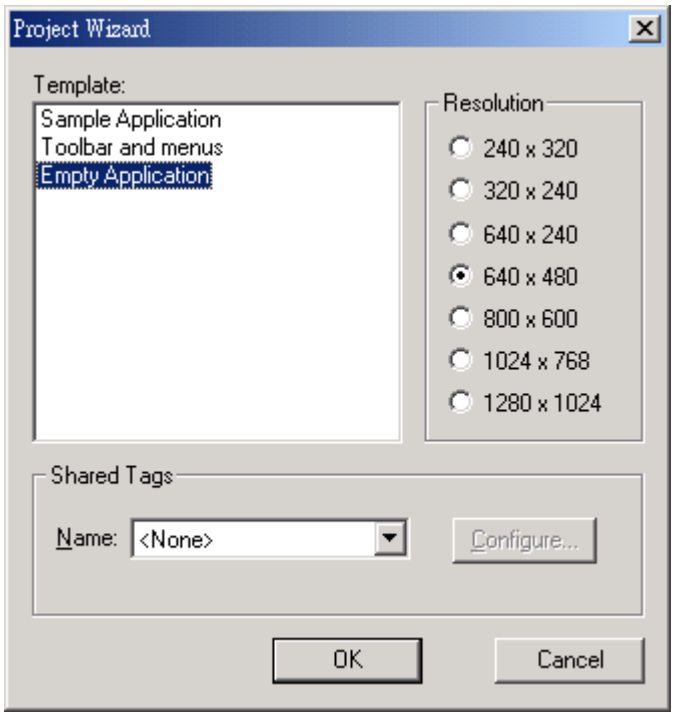
3. Type the name of your application into the Application name text box (for this example, type `GetStart`).

IWS automatically creates a new directory of the same name and assigns your application file to that directory (notice the Configuration file text box in the previous figure). To put your application file somewhere other than in the *\Projects* subfolder of *InduSoft Web Studio*, click Browse and navigate to the preferred directory location.

4. Select a platform from the *Target Platform* list (for this example, select CEView Standard), then click OK to proceed.

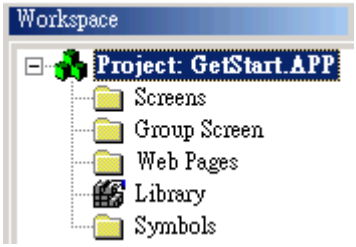
> **Note:**
> You use CEView Lite and CEView Standard target platforms for WindowsCE-compliant run-time applications.

5. When the *Project Wizard* dialog displays, select Empty Application from the *Template* list, click the 640 X 480 radio button to specify the application resolution, and then click OK.



Specifying an Empty Application with 640X480 Resolution

The new application file name displays in the *Workspace* window. (For this example, the file name is *Project: GetStart.APP*).



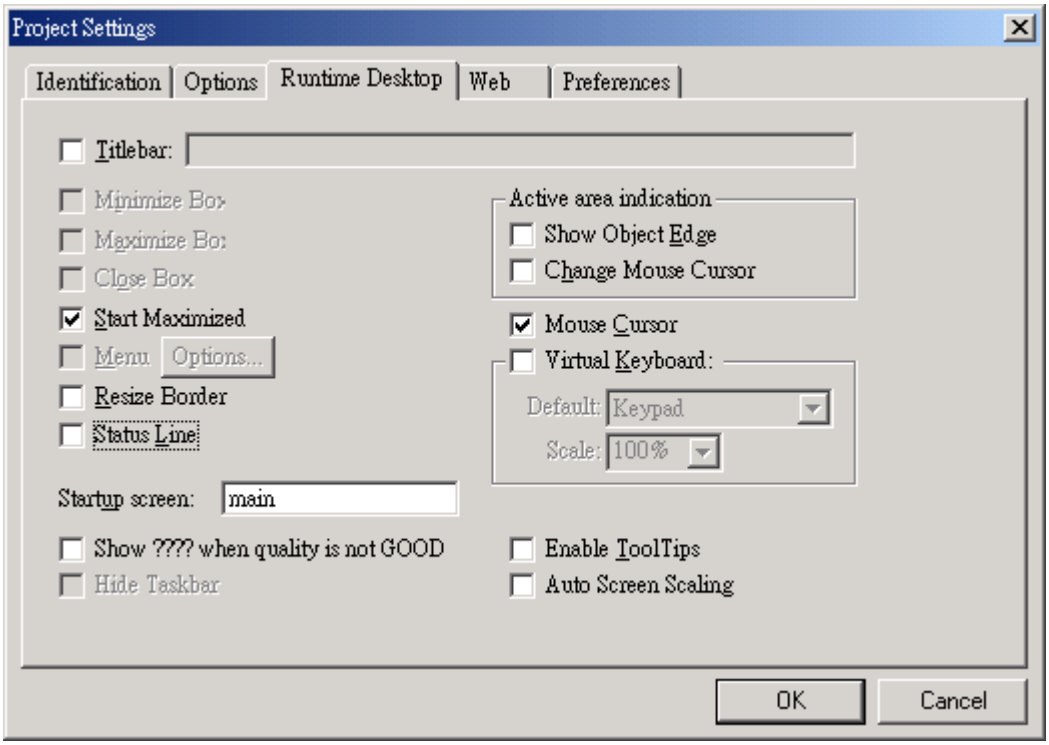
6.2 Specifying Project Settings

You can use tabs on the *Project Settings* dialog to apply certain parameters to the entire project. For example:

- Use the Identification tab to provide information that identifies the project application (such as project description, revision number, Company name, Author's name, field equipment, and general notes).
- Use the Options tab to specify automatic translations, alarm history, pc-based controls, target systems, communication drivers, OPCs, and TCP ports.
- Use the Runtime Desktop tab to enable/disable the run-time desktop parameters.
- Use the Web tab to specify, data server IP addresses, send periods (in milliseconds), URL addresses, tooltips and file compression, logging, and IP security.
- Use the Preferences tab to enable/disable warning messages before downloading screens to the target system.

Specify the following settings for your new *GetStart.APP* application:

1. Select Project → Settings from the main menu bar.
2. When the *Project Settings* dialog displays (see the following figure), click the *Runtime Desktop* tab and type **`main`** in the Startup screen field.

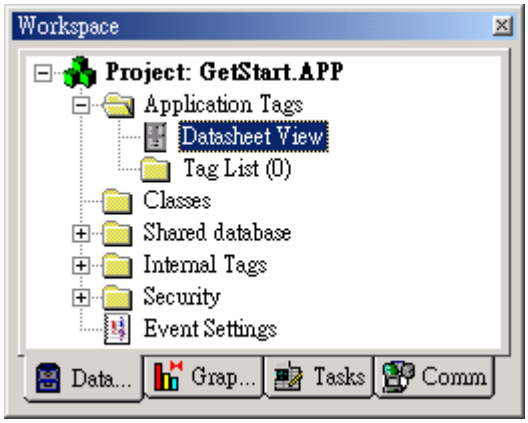


*Specifying the **`main`** Screen*

When you execute the application, IWS will open the **`main`** screen (or whatever screen you specify) automatically.

6.3 Creating Tags

A *tag* is any variable that holds a value. You can create tags at any time during the development of an application. All tags created in an application are stored in the *Application Tags* folder located on the *Database* tab in the *Workspace* (see the following figure).



Application Tags Folder

Use the following procedure to create a new tag:

1. Double-click on the Datasheet View icon to open the *Application Tags* worksheet.
2. When creating a new tag, you must set the following main properties:
   - Name: Specify a unique tag name. (All tags must have a unique name.)
   - Array Size: Specify the number of elements for an array tag. (For simple tags, you must specify zero.)
   - Type: Specify the data type to be supported by the tag (Boolean, Integer, Real, String, or Class).
   - Description (*optional*): Type a description of the tag for documentation purposes only.
   - Web Data: Specify the communication behavior of the tag between the Server and the Web Thin Client stations.
     - ❑ Specify Local if you want the tag to have independent values in the Server and Web Thin Client stations.
     - ❑ Specify Server if you want the tag to share the same value in the Server and Web Thin Client stations.
3. Use the following parameters to create a tag for the sample application:



Notice that Array Size = 3 was specified for each tag. Each array element relates to one of the three tanks:

`Level[1]` ➔ Level of the Tank #1
`Level[2]` ➔ Level of the Tank #2
`Level[3]` ➔ Level of the Tank #3

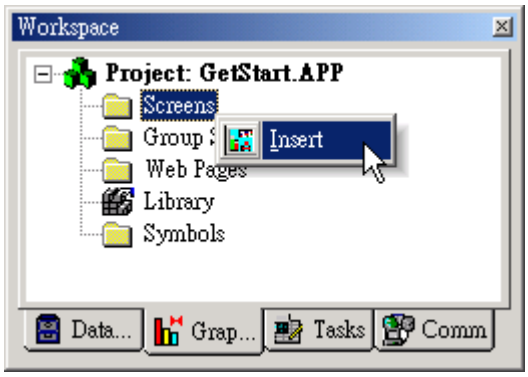
Do not use the 0 element **`(Level[0])`** in this example (although it is a valid tag).

> **Note:**
> You will create additional tags as you configure the application.

6.4 Creating the Start-up Screen (main.scr)

To create a new screen for your application:

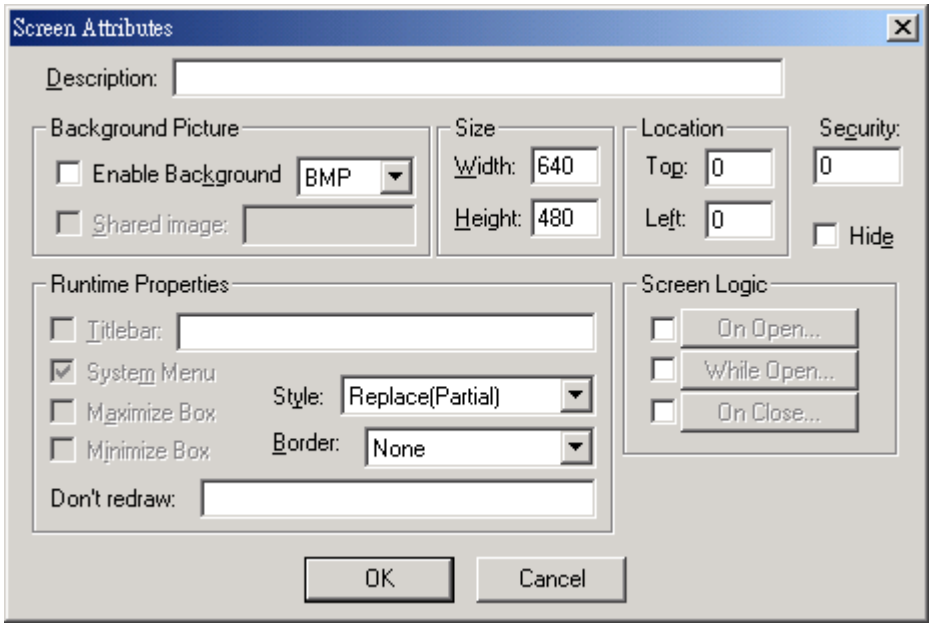
1. In the *Workspace* window, click the *Graphics* tab then right-click on the *Screens* folder.



Right-Click the Screens Folder

   IWS stores all screens created for an application in this *Screens* folder.

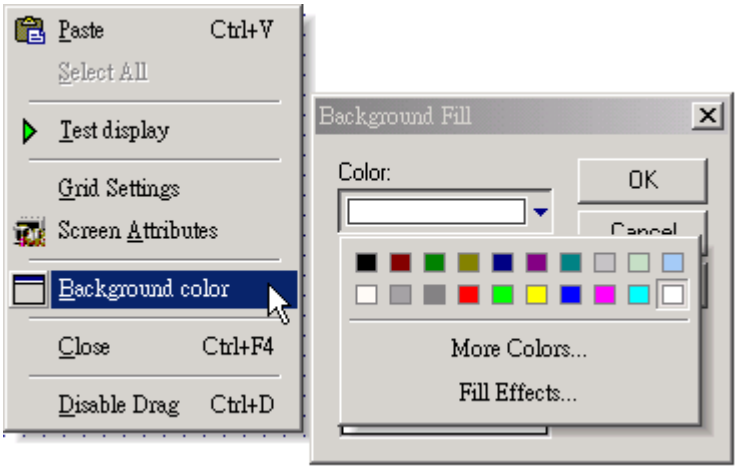
2. When the pop-up menu displays, select the Insert option to open the *Screen Attributes* dialog.



Screen Attributes Dialog Box

3. Use this dialog to set screen properties such as size and type. For this example, just click the OK button to accept the default settings.

4. Right-click on the new screen and select Background color from the pop-up menu. Select the *gray* color and click OK to apply that color to the screen.

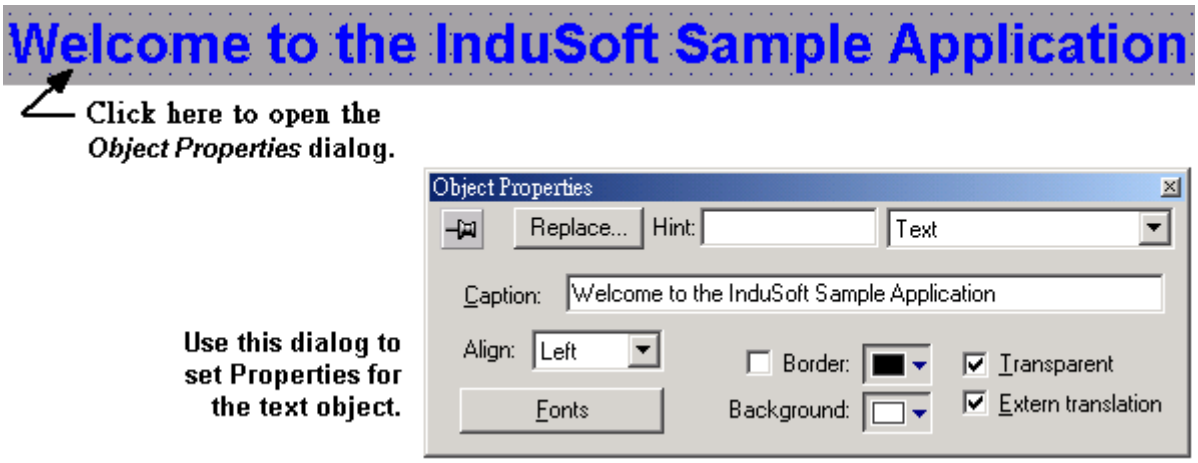


Open the Background Color Dialog and Select a Gray Color

5. Create a Text object, by clicking on the Text icon .
6. Click on the screen and type the following text:

   `Welcome to the InduSoft Sample Application.`

7. Double-click on the Text object to open the *Object Properties* dialog.



Click on the Text Object

> **Notes:**
>
> Double-clicking on any object opens an *Object Properties* dialog containing parameters related to that object. The features on the dialog change depending on the item selected from the combo box The combo box list changes depending on which properties you applied to the object.
>
> The *Object Properties* dialog contains a button that controls whether this dialog remains open. The button changes state (and function) each time you click on it, as follows:
>
> - Click to close the dialog when you click anywhere in the display except on an object.
> - Click to keep the dialog open regardless of where you click.
>
> Also, you can click to close the *Object Properties* dialog.

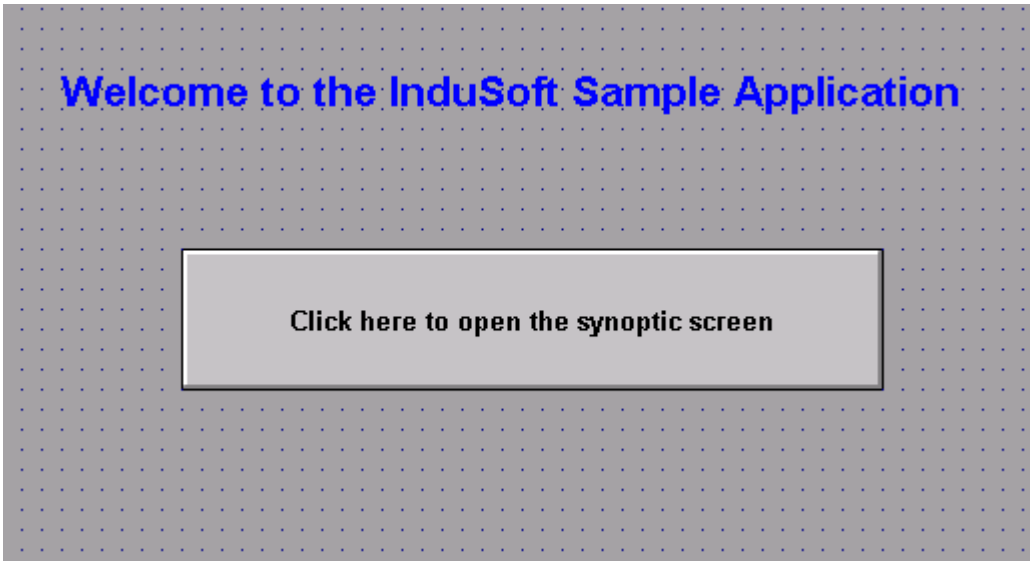
8. Check (*enable*) the Transparent check box to set the background color of the Text object to transparent.
9. Click the Fonts button to specify font settings (for example: Type=Arial, Size=20, Color=Blue).

10. Click the Button icon to create a Button object.

11. Click on the screen, press the mouse button and drag the cursor to define the object size.

12. Double-click on the new Button object to open the *Object Properties* dialog and type the following text into the Caption field:

    `Click here to open the synoptic screen.`

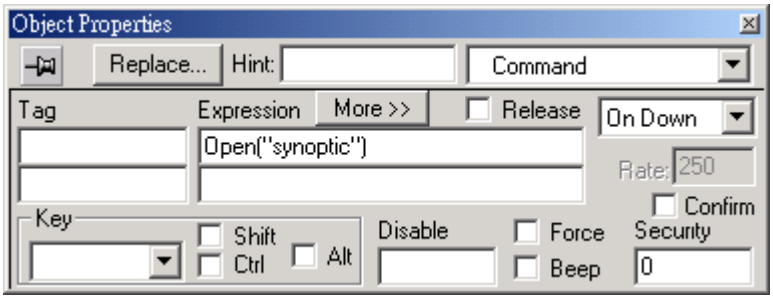


Adding a Caption to the Button

13. Select the Button object and click on the Command icon to apply this dynamic to the object.

14. Double-click on the Button object to reopen the *Object Properties* dialog.

15. Type `Open("synoptic")` into the *Expression* field to apply this Command dynamic to the button (see figure):



Applying the Open("synoptic") Command Dynamic

When a user clicks on this button during runtime, IWS will open the *synoptic* screen.

16. Finally, select File → Save from the main menu bar, and save the screen as `main.scr`.

17. To close the main screen, right-click on the screen and select the Close option from the pop-up menu.

6.5 Creating a Screen Title

To create a screen title Text object, use the following steps:

1. Click the Text icon , click on the screen, and type: Synoptic Screen.
2. Double-click on the Text object to open the *Object Properties* dialog.
3. When the dialog displays, check the transparent check box and set the Text object's background color to transparent.
4. Click the Fonts button and modify the font settings (for example: Type=Arial, Size=20, Color=Blue).
5. Move the object to the top of the screen.



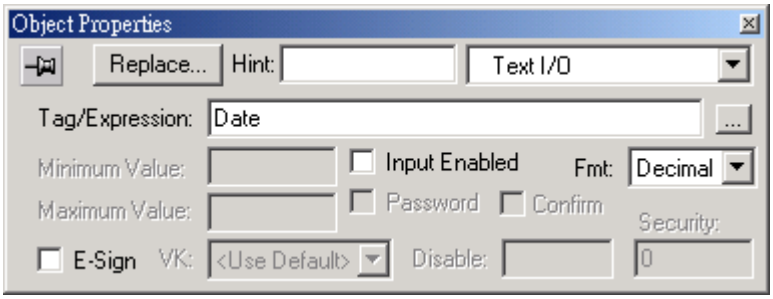
Finished Screen Title

6.6 Creating Date / Time Text Objects

> **Note:**
> Date and Time are internal tags that hold the current date and current time (respectively) from the local station. The Date and Time tags are available for any application.

To create Date and Time Text objects, use the following steps:

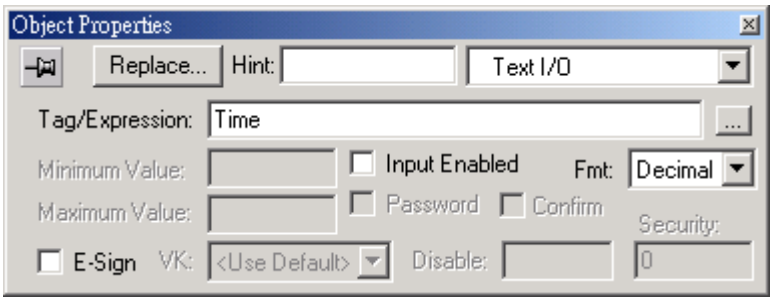
1. Click on the Text icon , then click on the screen and type: `Date: ##########`.
2. Double-click on the Text object to open the *Object Properties* dialog.
3. When the dialog opens, enable the Transparent check box and set the Text object's background color to transparent.



4. Select the Text object and click on the Text I/O icon to apply this dynamic to the object.
5. Double-click on the Text object to open the *Object Properties* dialog again.
6. Type `Date` into the *Tag/Expression* field (as shown in the following figure) to configure the Text I/O dynamic.

   During the runtime, IWS replaces the ########## chars you configured for the Text object with the value of the Date tag.
7. Click on the Text icon again to create a time Text object.
8. Click on the screen and type `Time: ########`.

9. Double-click on the Text object to open the *Object Properties* dialog.
10. Enable the Transparent check box and set the background color to transparent.
11. Select the Text object and click on the Text I/O icon to apply this dynamic to the object.
12. Double-click on the Text object to reopen the *Object Properties* dialog and type `Time` into the *Tag/Expression* field (see figure) to specify the internal tag for the Text I/O dynamic.



During runtime, IWS replaces the ######## chars with the `Time` tag value.

This figure illustrates how your screen should look after creating the Date and Time text objects.

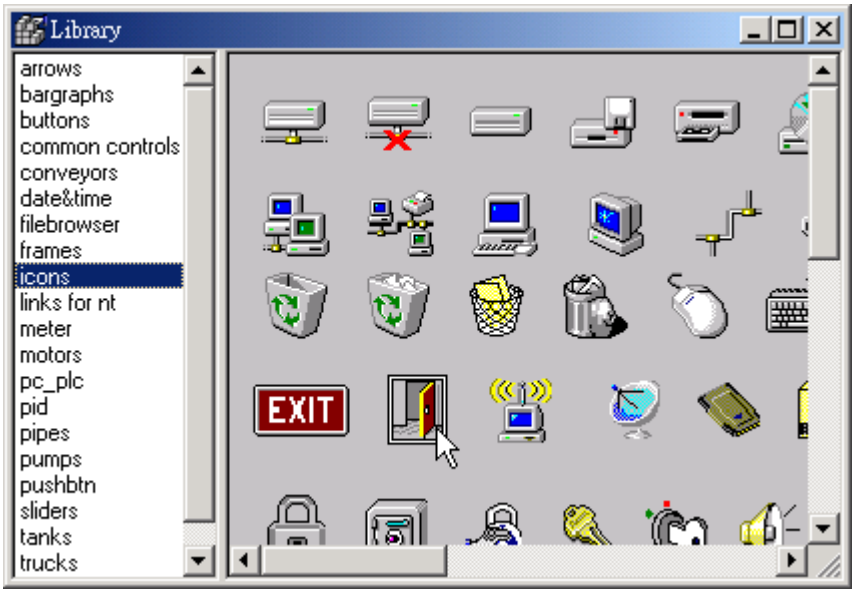


Finished Date and Time Objects

6.7 Creating an Exit Icon

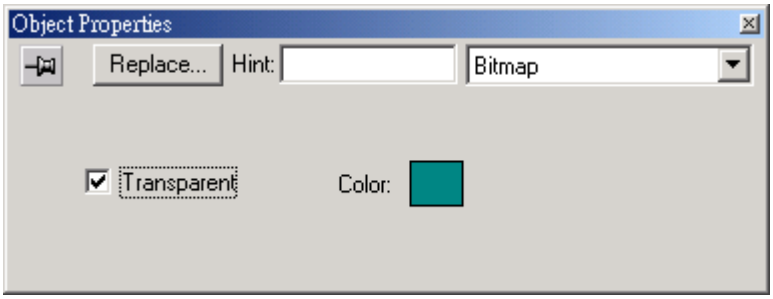
To create an Exit icon for the screen, use the following steps:

1. Click the Library icon to open the symbols library.
2. Select icons from the list then double-click on the open door icon to open the object on your screen.



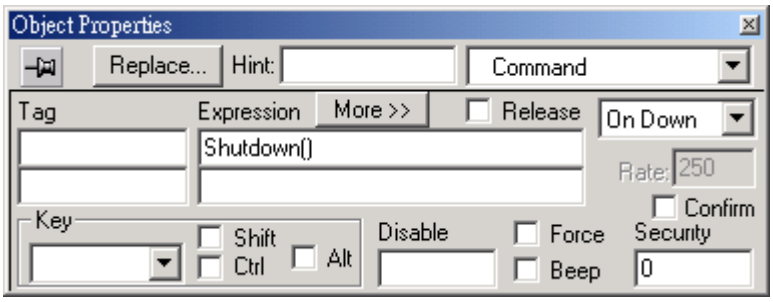
Select the Open Door Icon

3. Double-click on the Bitmap object to open its *Object Properties* dialog.

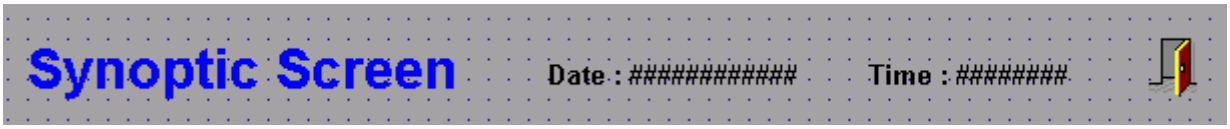


4. Select the Bitmap object and click on the Command icon to apply this dynamic to the object.

5. Double-click on the Bitmap object to reopen the *Object Properties* dialog and type `Shutdown()` into the Expression field to configure this function for the Command dynamic and apply it to the bitmap.



The following figure illustrates how your screen should look after creating the Exit icon (right side of screen). Now, when a user clicks on this icon during runtime, IWS will `Shutdown()` the application (runtime modules).



Exit Icon

6.8 Testing the Application

Use the following procedure to test your application:

1. Click the Run application icon (located on the IWS toolbar) to execute the application.

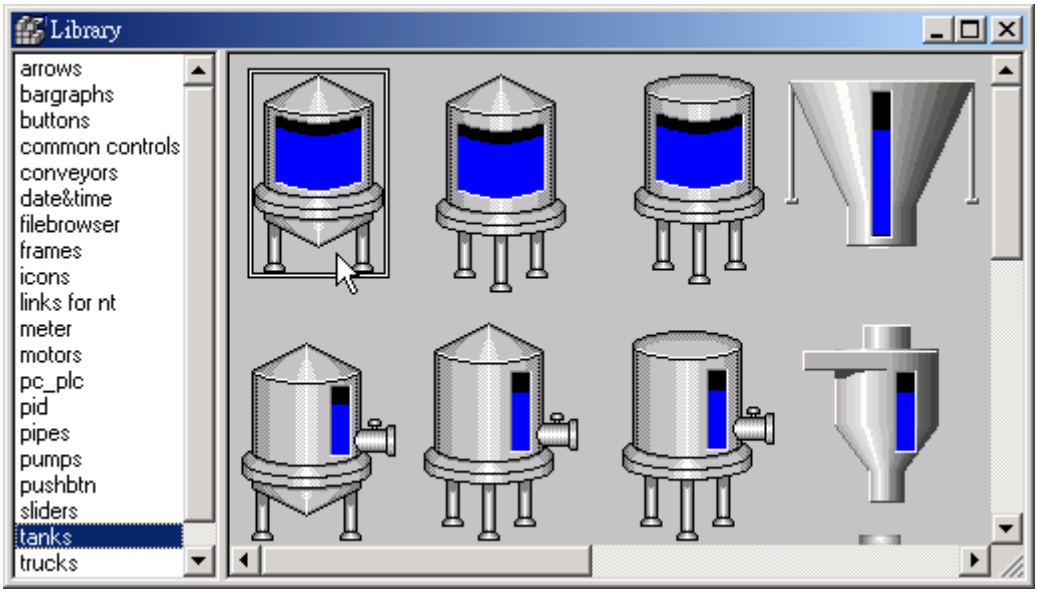
2. Click the Exit icon (open door bitmap) or switch back to the development environment of IWS (Alt+TAB) and click the Stop application icon on the IWS toolbar to close the application.

6.9 Creating a Tank Object

To add a Tank object to your screen, use the following steps:

1. Click the Library icon located on the IWS toolbar) to open the symbols library.

2. Select tanks from the list (see the following figure), and double-click on any tank to include it on the screen:



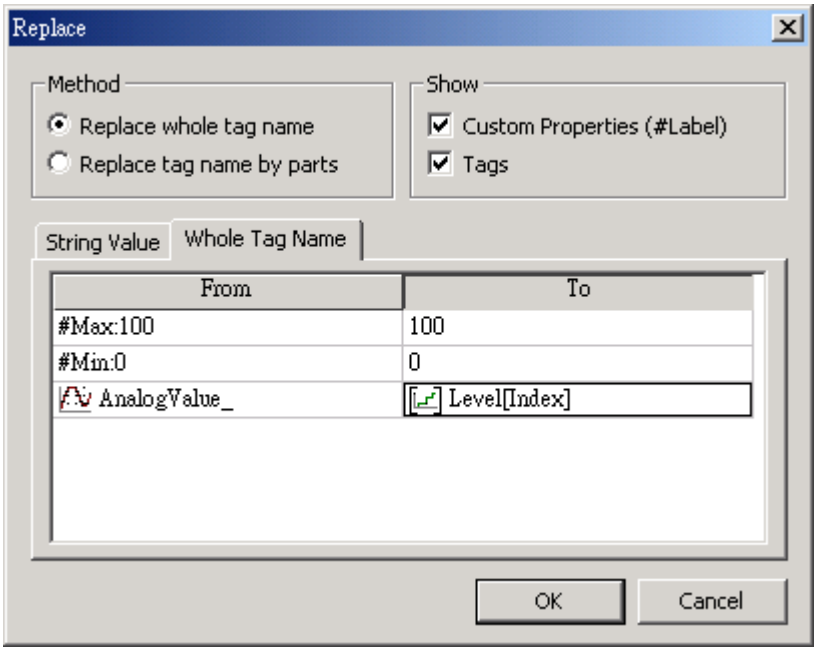
Select a Tank Object

3. Double-click on the tank to open its *Object Properties* dialog.

   A tank is a combination of different objects and dynamics from IWS (for example a rectangle, a bar graph, and so forth). You can modify the properties of this object by selecting the object or dynamic from the Group of Symbols combo-box. For this example however, you will modify just the tag associated with the tank object.

4. Click on the Replace button to associate a tag with the tank object.

5. When the *Replace* dialog displays (see following figure), you are going to replace the *Current Tag* AnalogValue_ (an internal tag used to simulate level) by typing `Level[Index]` in the topmost *New Tag* field.



Replace Dialog

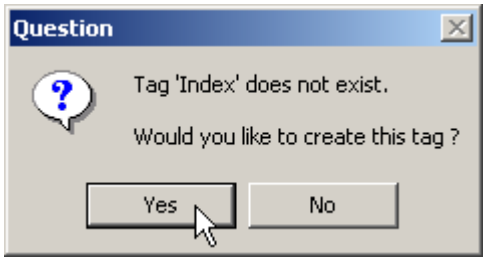
You can use the `[Index]` tag to set the array position of the `Level` tag, and show the level for any of the three tanks in the same object. For example:

When:

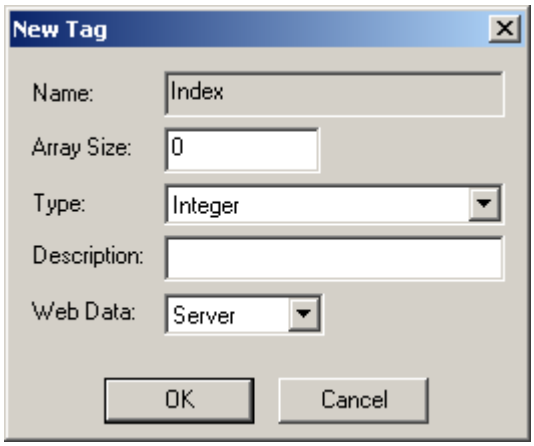
- Index=1, the object shows the level of Tank #1 (`Level[1]`)
- Index=2, the object shows the level of Tank #2 (`Level[2]`)
- Index=3, the object shows the level of Tank #3 (`Level[3]`)

6. Click OK to confirm the tag replacement.

   Because you have not previously created an `Index` tag in the Application Tags database, IWS displays the following message:



7. Click Yes to create the Index tag from the screen editor. (Note that you do not have to open the application Tags database again to create tags as you configure the application).



New Tag Dialog

8. You must configure the Index tag Type as Integer, Array Size as **0**, and Web Data as Local.

   Because the tag is Local, it can have different values for the Server station and the Web Thin Client station at same time. Consequently, the local user (Server station) can be monitoring the level of one tank (for example: Index=1 Tank#1) while the remote user (Web Thin Client station) is monitoring the level of another tank (for example: Index=2 Tank#2).

   The following figure illustrates how your screen should look after creating the tank object (bottom center).

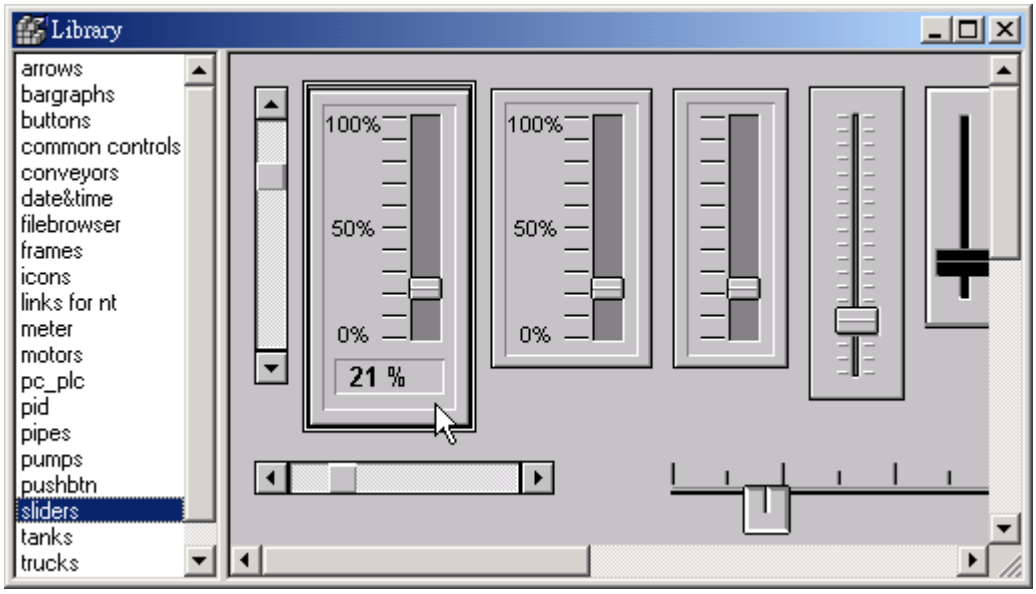


Screen with New Tank Object

6.10 Creating a Level Slider Object

To create a level slider object for your application, use the following steps:

1. Click the Library icon to open the symbols library.
2. Select sliders from the list, and then double-click on any slider object in the display (see following figure) to add it to the screen.

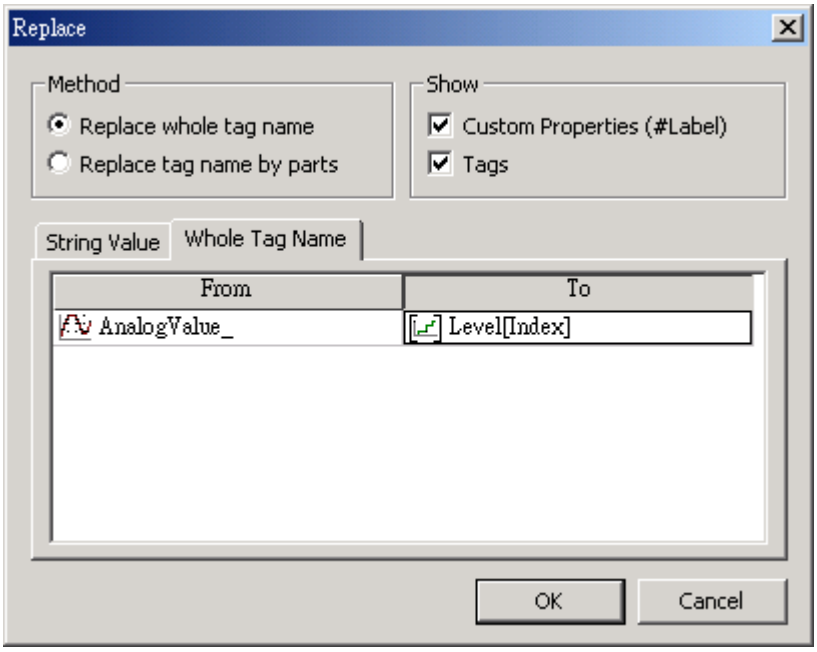


Selecting a Slider Object

3. Double-click on the slider to open its *Object Properties* dialog box.

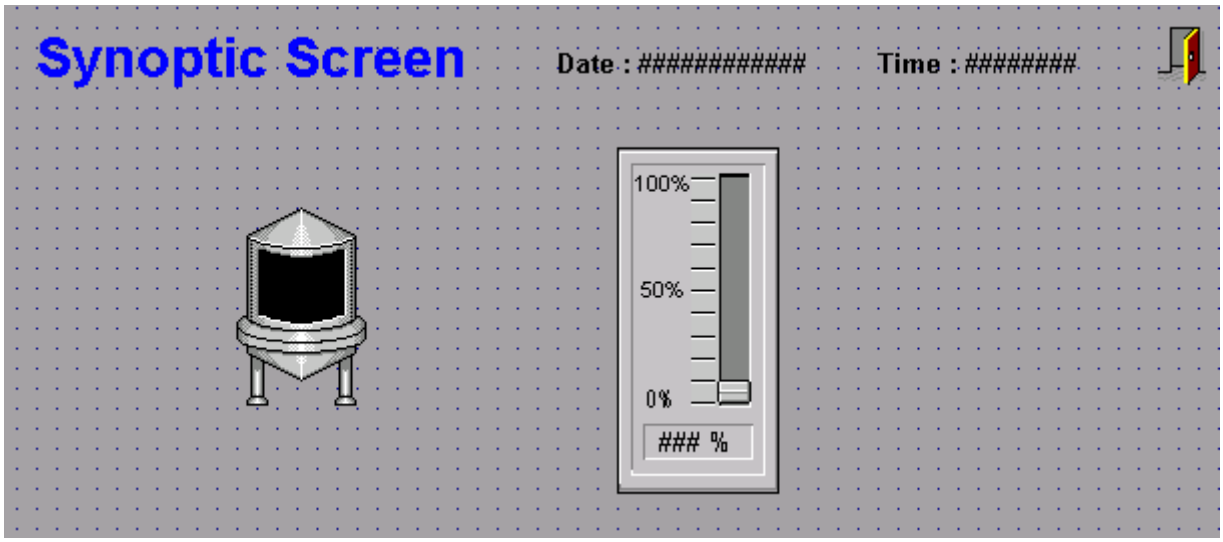
   A slider is a group of different objects and dynamics from IWS (rectangle, position, and so forth). You can modify the properties of this object by selecting the object or dynamic from the Group of Symbols combo-box. For this example, you will modify just the tag associated to the object.

4. Click the Replace button to associate a tag to the object.
5. When the *Replace* dialog displays, type `Level[Index]` in the topmost *New Tag* field then click OK to confirm the tag replacement



Replacing the Current Tag

The following figure illustrates how your screen should look after creating the slider object (bottom right).



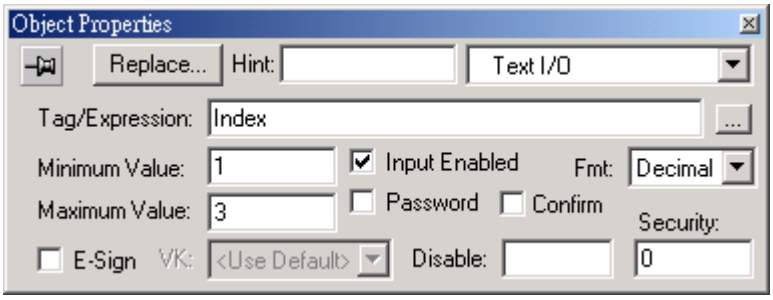
Screen with the New Slider

6.11 Selecting a Tank

To select a tank, use the following steps:

1. Click on the Text icon to create a Text object.
2. Click on the screen and type: Tank: #.
3. Double-click on the Text object to open the *Object Properties* dialog.
4. Enable the Transparent check box and set the background color of the Text object to transparent.

5. Select the Text object and click on the Text I/O icon to apply this dynamic to the object.



6. Double-click on the Text object to reopen the *Object Properties* dialog and type `Index` in the Tag/Expression field to specify this internal tag for the Text I/O dynamic.

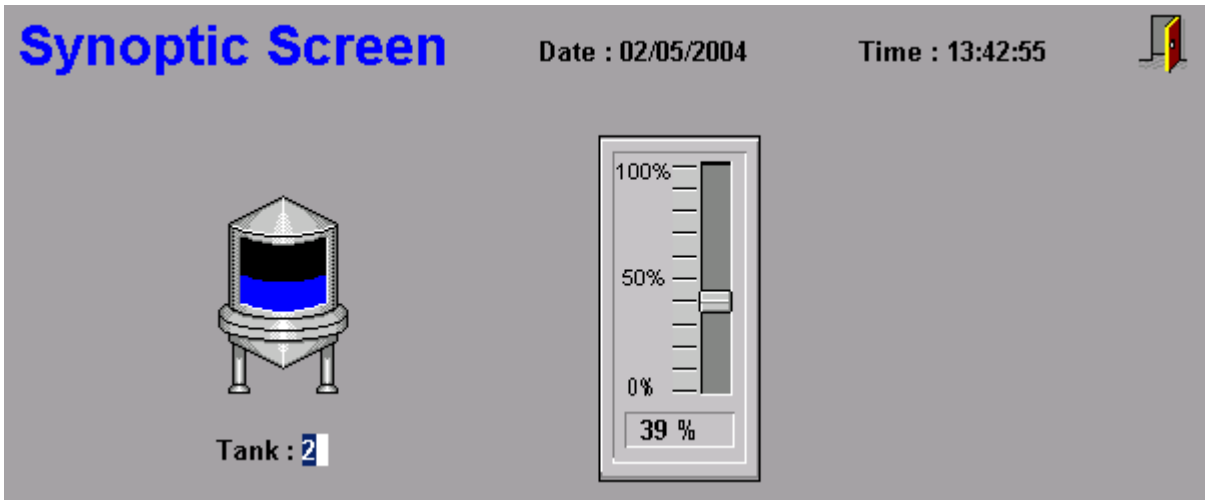
7. Enable the Input Enabled check box to permit entering a new value for the Index tag during runtime.

8. Type `1` in *Minimum Value* field and `3` in the *Maximum Value* field.

   During runtime, IWS will replace the `#` characters configured in the Text object with the Index tag value.

9. Finally, select File → Save from the main menu bar, and save the screen as `synoptic.scr`.

   The following figure illustrates how your screen should look when you are finished creating your application.



Finished Application Screen

10. Right-click on the screen, and select Close from the pop-up menu to close the main screen.

6.12 Testing the Application

To test your application, use the following steps:

1. Click on the Run application icon to execute the application.

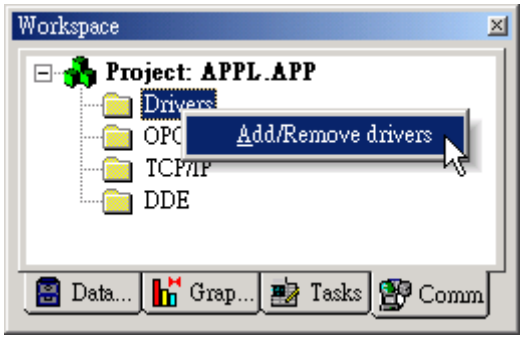
2. Type the tank number (1, 2, or 3) in the Tank label and modify the level of each tank using the slider. Note that you can monitor/set the level of each tank independently.

3. Click the Exit icon (upper right corner) or switch back to the IWS development environment (Alt+TAB) and click the Stop application icon to close the application.

7. Configuring the I/O (DCON) Communication Driver

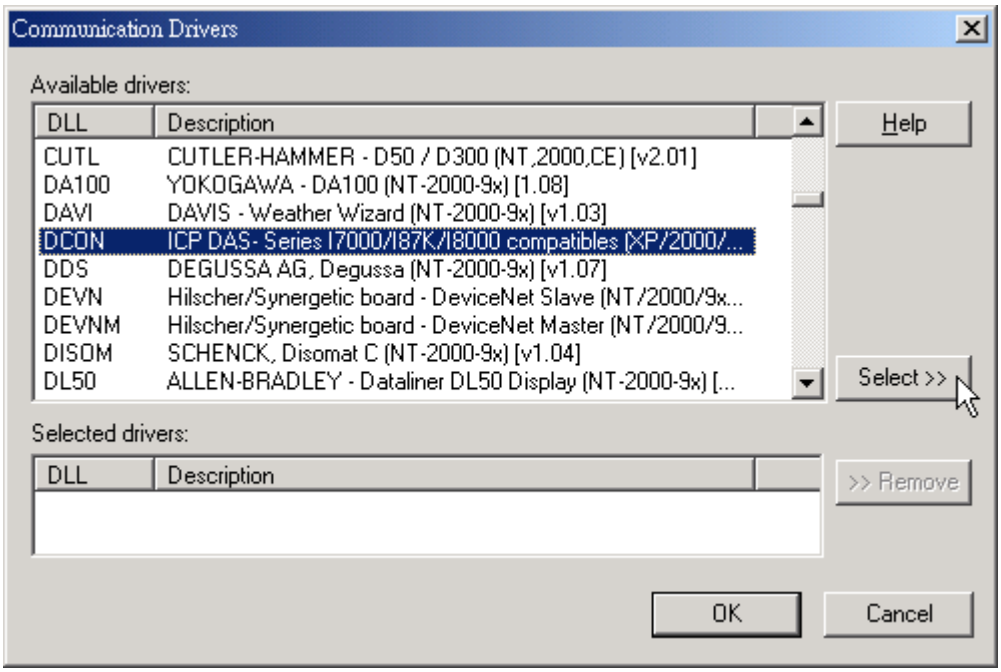
The IWS run-time software uses I/O drivers to acquire necessary data values from ICPDAS DCON series modules and other I/O devices. This section explains how to select, install, and configure an I/O driver.

1. In the *Workspace*, select the *Comm* tab and right-click the *Drivers* folder.
2. When the pop-up menu displays, select the Add/Remove drivers option.



Add/Remove Drivers

The *Communication Drivers* dialog displays as in the following figure.



Communication Drivers Dialog

3. Select a driver from the *Available drivers* list (for this example, use the DCON ICPDAS- Series I7000/I87K/I8000 compatibles driver) then click the Select button (or double-click on the driver).

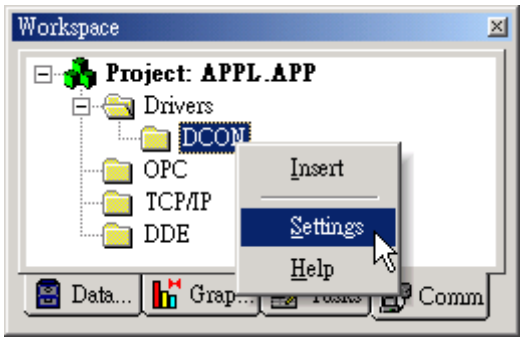
   The program moves the selected driver to the *Selected drivers* list.

4. Click OK to close the window and save your changes.

> **Note:**
> To remove a driver from *Selected drivers*, select it and click Remove.

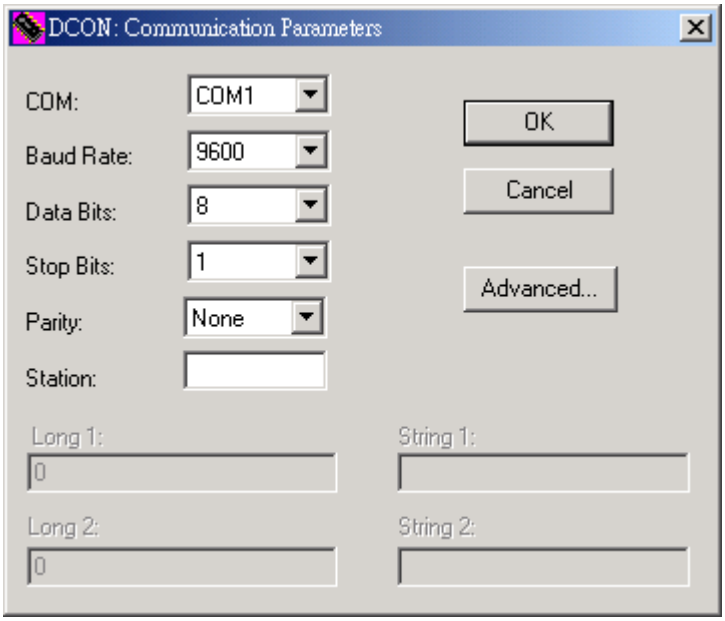
5. A boxed plus sign displays beside the *Drivers* folder. Click the plus sign or double-click on *Drivers* (the word or folder) to display the subfolders for any drivers you added. (For this example, a *DCON* subfolder displays.)

6. Right-click on the *DCON* folder and select Settings from the pop-up menu.



Select Settings from the Pop-Up Menu

7. When the *Communication Parameters* dialog displays, configure the settings to match the communication parameters configured for the DCON series Modules.

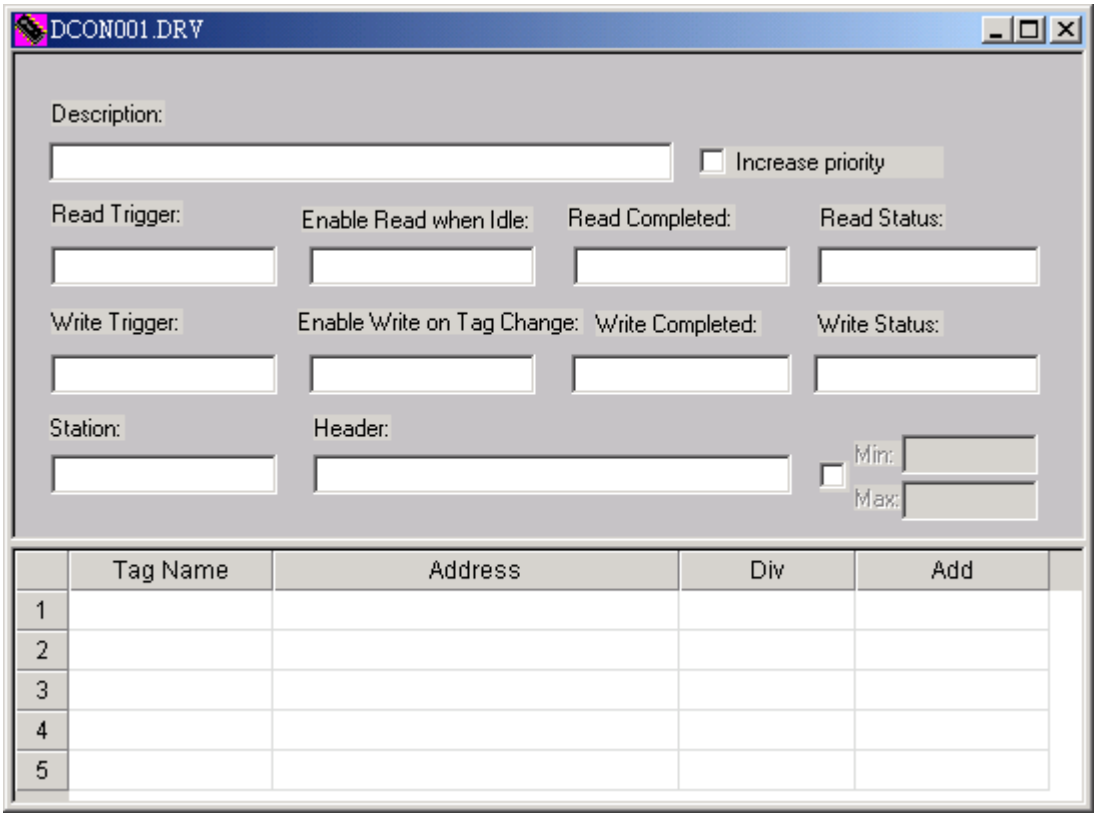


Communications Parameters Dialog for DCON Driver

> **Tip:**
> Select Help → Communication Drivers and *DCON Driver User Manual* for detailed information about configuring these communication parameters.

8. Right-click the *DCON* folder again and select Insert from the menu.

   A *DCON001.drv* dialog displays in the *Workspace*. Notice that the dialog is divided into two sections:



DCON001.DRV Dialog

- Header: A gray header with several fields
- Body: Form of the worksheet

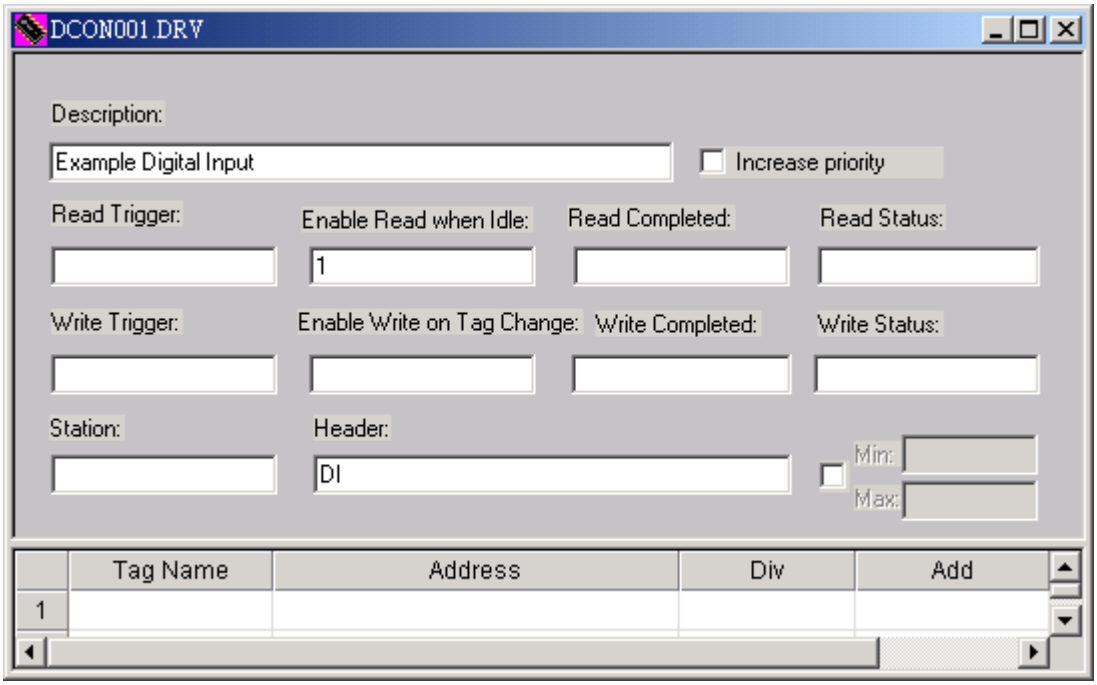
9. In the header section, configure these parameters as follows:
   - Description text box: Type `Example DCON`. (This parameter is just for documentation and it does not affect the communication in any way.)
   - Enable Read When Idle text box (*Boolean values, 1= yes and 0 = no*): Type `1` so IWS will continue reading these values from the PLC addresses configured in the body of this driver worksheet.
   - Enable Write on Tag Change text box (*Boolean values, 1= yes and 0 = no*): Type `1` so IWS will write the value from the tags configured in this driver worksheet whenever the tags change value.
   - Station text box (indicates the I/O device number to be accessed by this driver. Typically, the PLC is specified as Device #1.) Type `1`.
   - Header text box.: Type a reference value from the following table.

> **Note:**
> You must use a driver-specific format in the Header text box.
> The format for a ModBus protocol is:
> ***<reference for the type of register>:***
> ***<initial offset for the first stored value>.***

The following table provides a list of acceptable register types for the DCON driver:

Information regarding the parameter "Header"			
Type	**Sample of syntax**	**Valid range of initial Address**	**Comment**
Read Digital Input/Output	DI	Any	
Read/Write Digital Output	DO	Any	
Read Analog	AI	Any	The ICP DAS device channel must be configured to engineering units
Write/Read Analog	AO	Any	The ICP DAS device channel must be configured to engineering units
Read/Set Counter	Counter	Any	
Read/Set DI Counter value	DICounter	Any	
Write Command	SendCmd	Any	Send command to the device

For example: **DI** signifies to read a digital input Modules.



Sample Header Section

10. Type the following information into the spreadsheet provided at the body section of the *DCON001.drv* window:

    - Tag Name: Type the I/O tag name.
    - Address: Type the DCON format in Address field.

    The address cells complies to the following syntax:

    For **I-7000** and **I-87K** Family:

    <Module's Address>:<Module ID>:<Channel Number>

- **Module's Address[Hex]:** Module's Address in the network (Range from 00 to FF)
- **Module ID:** Module's ID in the device
- **Channel Number:** Channel's Number to be read or written from the module.

For **I-8000** Family in **I-8xx1 embedded controller**:

<Module's Address>:<Module ID>:<Slot Number >:<Channel Number>

- **Module's Address[Hex]:** Module's Address in the network(Range from 00 to FF)
- **Module ID:** Module's ID in the device
- **Slot Number:** Module's Slot hanging on the rack.
- **Channel Number:** Channel's Number to be read or written from the module.

For **I-8000** Family in **WinCon-8x39 embedded controller**:

<Module ID>:<Slot Number >:<Channel Number>

- **Module ID:** Module's ID in the device
- **Slot Number:** Module's Slot hanging on the rack.
- **Channel Number:** Channel's Number to be read or written from the module.

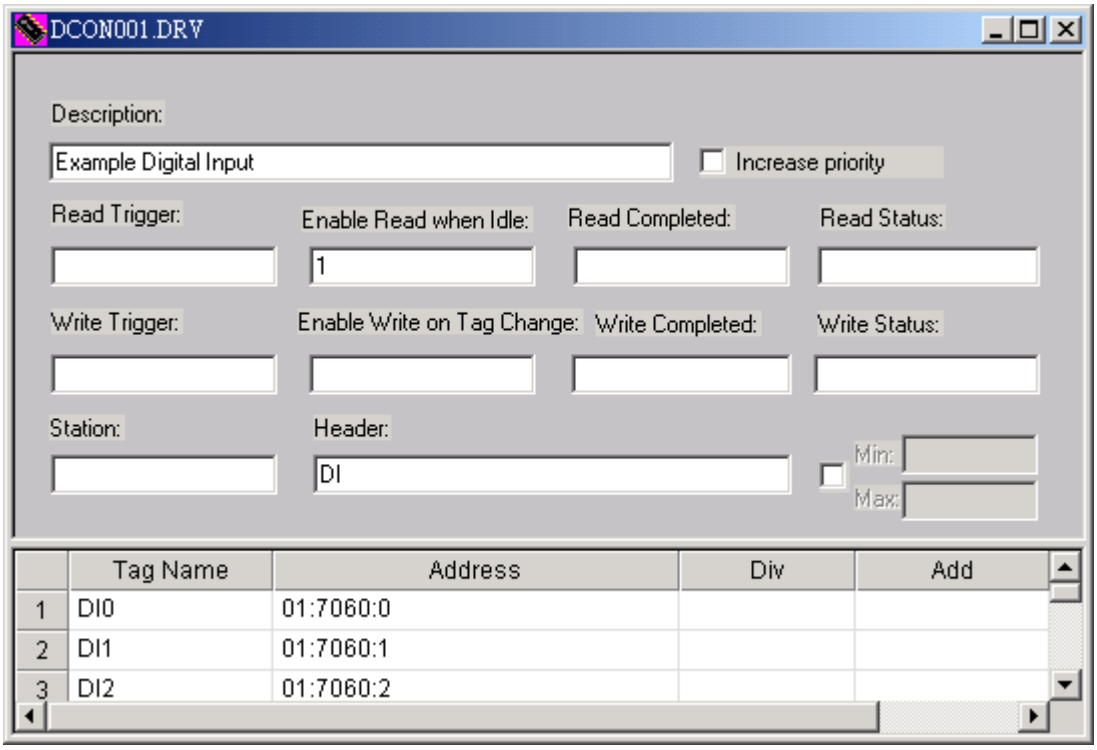
ICPDAS DCON series modules that support IWS are listed below:

Head Type	Support Modules
DI:	I-7011/12/14/16, I-7041/44/50/52/53/55, I-7060/63/65, I-87051/52/53/54/55/58/63 and I-8040/42/50/51/52//53/54/55/58/63/77
DO:	I-7011/12/14/16, I-7042/43/44/50, I-7060/63/65/66/67/80, I-87054/55/57, I-87063/64/65/66/68/69, I-8037/41/42/50/54/55/56/57, I-8060/63/64/65/66/68/69/77
AI:	I-7011/12/13/14/16/17/18/33, I-87013/16/17/18 and I-8017H
AO:	I-7016/2122/24, I-87022/24/26, and I-8024
DI Counter:	I-7011/12/14/16, I-7041/44/50/52/53/55, I-7060/63/65 and I-87051/52/53/54/55/63

11. Associate the application tags to the DCON format according to the following table:

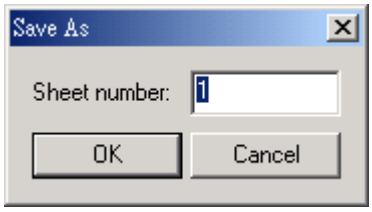
Sample of Addressing Configuration		
Address on the Device	**Header Field**	**Address Field**
Read 87053 module Address 1 channel 0 (input)	**DI**	**01:87053:0**
Write/Read 7064 module Address 6 channel 1 (output)	**DO**	**06:7064:1**
Read 7017 module Address 1 channel 0 (input)	**AI**	**03:7017:6**
Write/Read 7021 module Address A channel 1 (output)	**AO**	**0A:7021:1**
Read/Set 7080 module Address 1 channel 0 (input)	**Counter**	**03:7080:1**
Read/Set 7060 DI module counter Address 5 channel 0 (input)	**DICounter**	**05:7060:1**
Write command to devices with tag value	**SendCmd**	**Not used**
Read address 1 channel 0 of 8053 module in slot 1	**DI**	**01:8053:1:0**

Write DO to address 6 channel 1 of 8064 module in slot 4	**DO**	**06:8064:4:1**
Read AI from address 3 channel 5 of 8017 module in slot 6	**AI**	**03:8017:6:5**
Write AO to address A channel 4 of 8024 module in slot 1	**AO**	**0A:8024:1:4**
Read DI from channel 0 of I-8053 module in slot 1 of WinCon	**DI**	**8053:1:0**
Write DO to channel 1 of I-8064 module in slot 4 of WinCon	**DO**	**8064:4:1**
Read AI from channel 5 of I-87017 module in slot 6 of Win-Con	**AI**	**87017:6:5**
Write DO to channel 4 of 8024 module in slot 1 of WinCon	**AO**	**8024:1:4**
Read X-axis CW/CCW counting value from 8090 module in slot 1 of WinCon	**Encoder:2:1:2**	**8090:1:1**
Read Y-axis Quadrant counting value from 8090 module in slot 1 of WinCon	**Encoder:2:1:3**	**8090:1:2**
Read Z-axis Pulse/Dir counting value from 8090 module in slot 1 of WinCon	**Encoder:2:1:3**	**8090:1:3**



Completed Body Section

12. Save the communication driver sheet (File → Save). When prompted to choose the driver sheet number, type 1 and click OK to save the *DCON001.DRV* driver sheet.

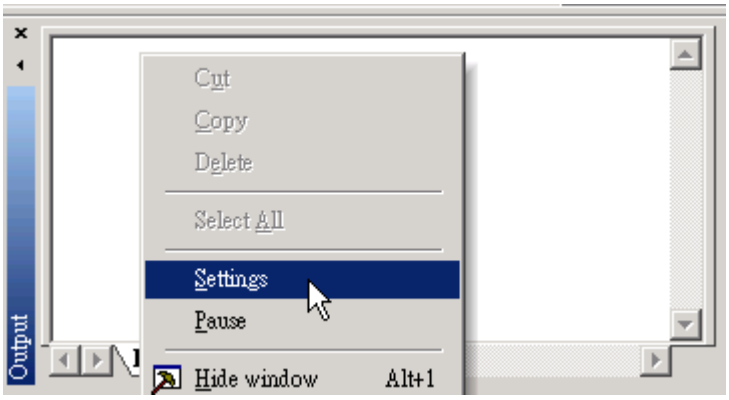


Save the Driver Sheet

To test the communication driver, use the following steps:

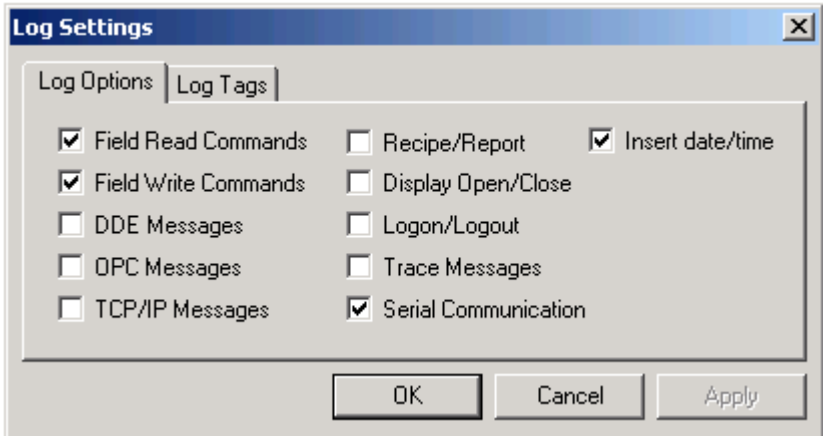
1. Click the Run application icon (on the IWS toolbar) to execute the application.

2. Right-click in the *Output* window (bottom of IWS development environment) and select Settings from the pop-up menu.



Select Settings from the Popup Menu

3. Enable the Field Read Commands, Field Write Commands, and Serial Communication options on the *Log Settings* dialog (see the following figure) then click OK.



Specifying the Log Options

4. Now you can start the application and monitor the communication messages from the *Output* window.

> **Note:**
> You can also monitor communication messages from the *LogWin* window (Project → Settings → LogWin).

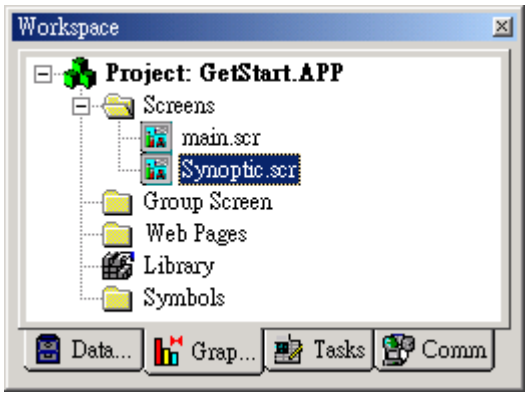
8. Running the Web-Based Application

This chapter explains how to prepare your application to run on the Web.

> **Note:**
> IWS stores all application screens in the *Screens* folder, located on the *Graphics* tab in the *Workspace*.

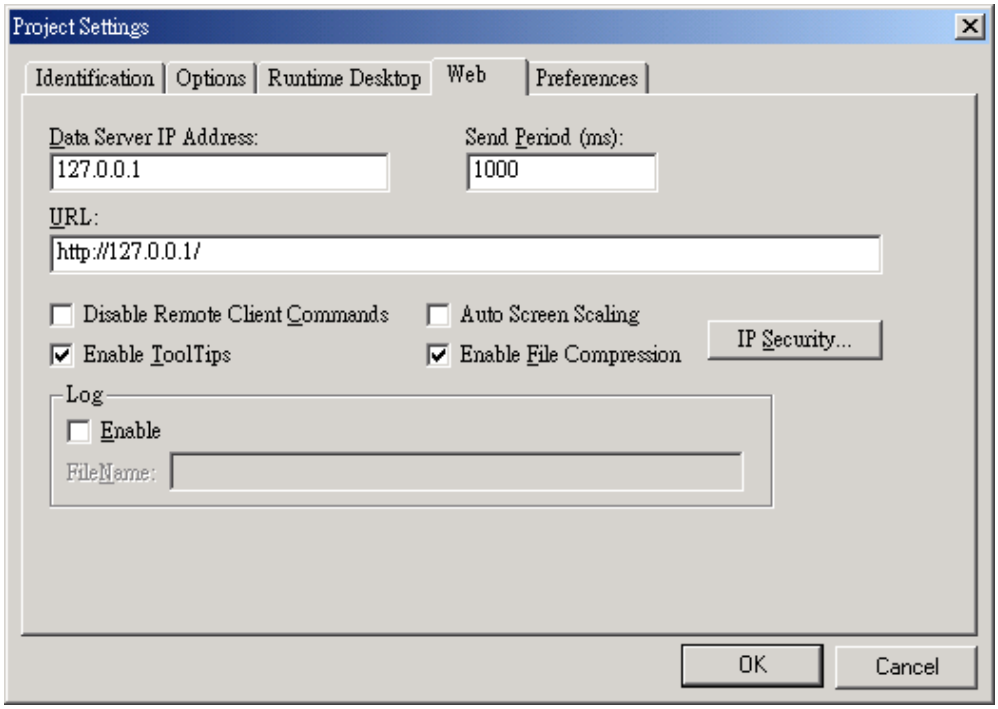
To open your application screen, use the following steps:

1. Expand the *Screens* folder and double-click on **`synoptic.scr`**.



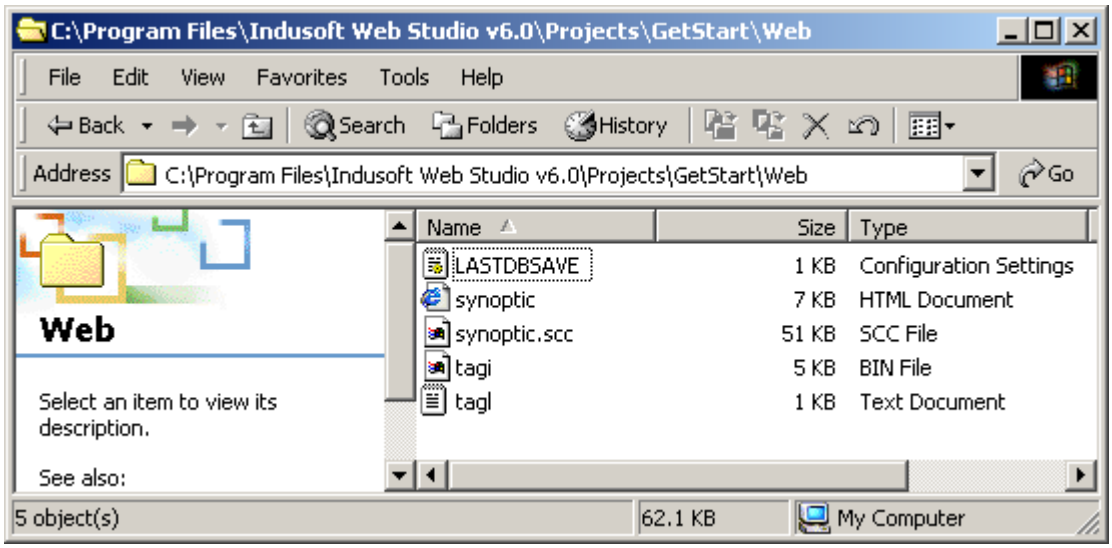
*Select **`scynoptic.scr`**.*

2. Select File → Save as HTML to save the screen in HTML format.



Saving Screens in HTML Format

3. After executing this command, the Web files are stored in the \Web subfolder of the application directory.



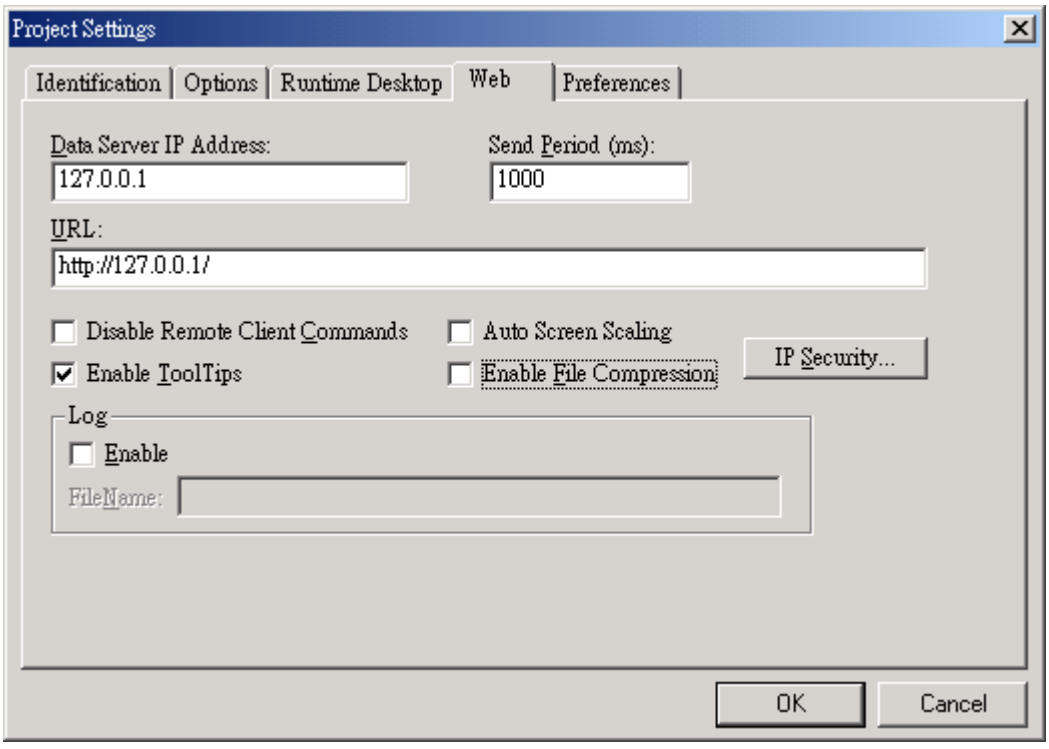
Viewing Web Files

4. Select Project → Settings from main menubar and select the *Web* tab.

5. You must specify the Server station IP address (for the station on which you are running IWS or CEView)the Data Server IP Address field, during runtime. The Web Thin Client station exchanges on-line data (tag values) with the station specified in this field.

6. You also must specify the URL path to the Web files (files saved in the *Web* subfolder) in the URL field. The URL depends on the Home directory configured for your server station Web Server.

   If the application's **/Web** subfolder is the home directory, you can configure the Web settings as shown in the following figure to test the Web Thin Client locally.



Specifying the Project Settings

> **Note:**
> Microsoft provides Web servers for any Microsoft operating system. Consult your Microsoft documentation for information about installing and configuring a Web Server.

7. After configuring the Web settings, click OK to close the *Project Settings* dialog.
8. Close all screens in the screen editor (Window → Close All) and then select Tools → Verify Application to update the Web Settings for the Web pages.

> **Caution:**
> You must execute Tools → Verify Application after changing any settings in the Project Settings menu.

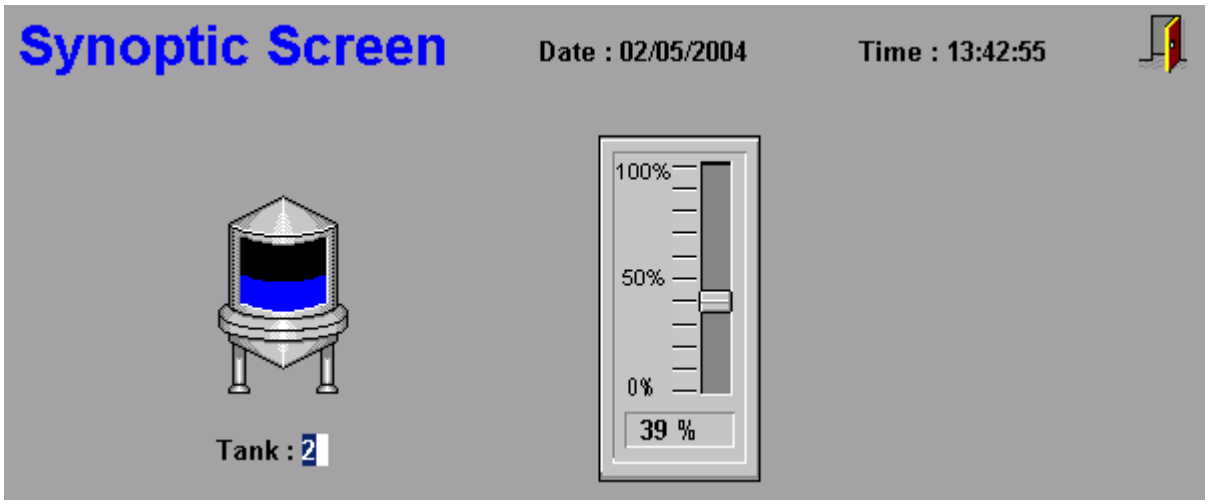
To test your Web-based application, use the following steps:

1. Click on Run application icon (on the IWS toolbar) to execute the application locally on the Server station.
2. Open an Internet Browser (Microsoft Internet Explorer or Netscape) and type the URL address to open the `synoptic.html` screen from the Server station (for example: http://127.0.0.1/synoptic.html).
3. When the *Log On* dialog displays in the Browser (see the following figure), type `guest` in the User Name field, then click OK to open the `synoptic.html` screen in the Browser.



Logging On as Guest

Notice that you can modify the level of any tank locally (Server Station) using the Viewer run-time module or remotely (Web Thin Client) using the Browser.



Modifying the Tank Level

Note:

A Web Thin Client requires an ActiveX component (*ISSymbol.ocx*) to handle screens on the Browser. If you connect the Web Thin Client to the Internet, this component is downloaded and registered automatically.

Otherwise, you must copy the *ISSymbol.cab* from IWS's \BIN subfolder and paste it into the *\<OSPath>\System32* directory on the Web Thin Client station. Use the WinZip® utility to unzip (*extract*) the files from *ISSymbol.cab* into the \<OSPath>\System32 directory and register the *ISSymbol.ocx* using the **regsvr32 ISSymbol.ocx** command.

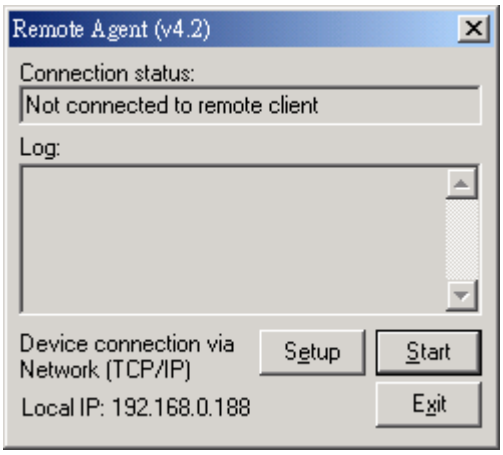
9. Running Applications from a Remote Station

This chapter explains how to run your application from a remote location.

After configuring an application and testing it locally (on the development station), you can download it to a remote run-time station that is running IWS on Windows NT/2000/XP or CEView on Windows CE.

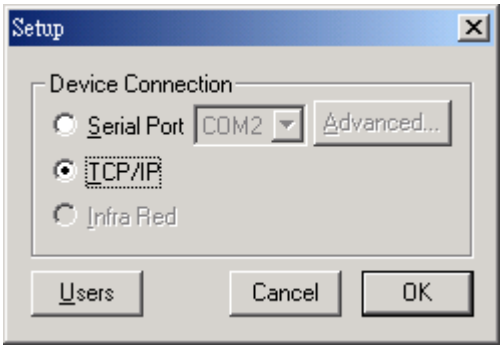
1. From the remote target station, select Start → InduSoft Web Studio v6.0 → Remote Agent to verify that the Remote Agent (**CEServer.exe**) is running.

2. When the *Remote Agent* dialog displays, click the Setup button.



Verifying the Remote Agent

3. When the *Setup* dialog displays, click Serial or TCP/IP to specify how the device is connected to the development station.



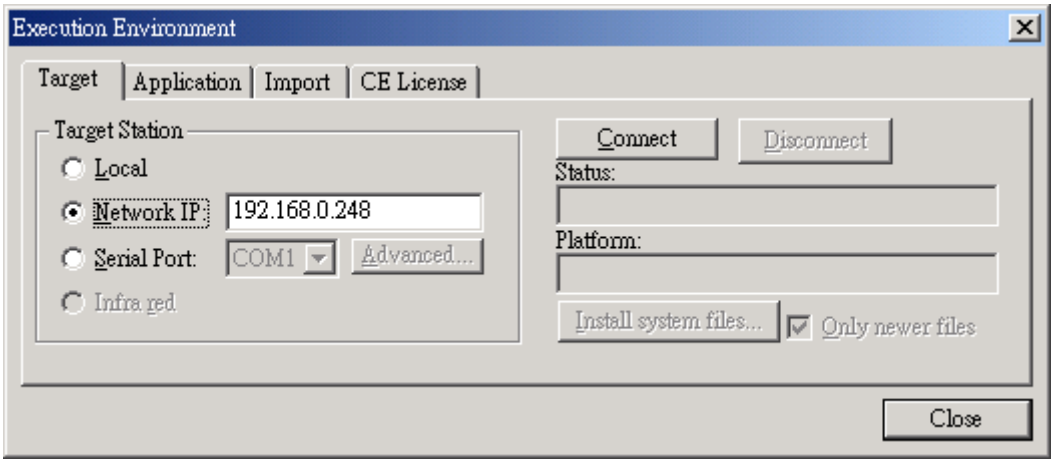
Specifying the Device Connection Method

> **Note:**
> InduSoft recommends using TCP/IP for performance reasons.

4. Click OK and leave the Remote Agent running on the remote station.

5. Select Project → Execution Environment from the main menubar to open the *Execution Environment* dialog.

6. Specify a link type for the Target Station (Network IP or Serial Port). If you select Network IP, type the remote station IP Address into the text box.

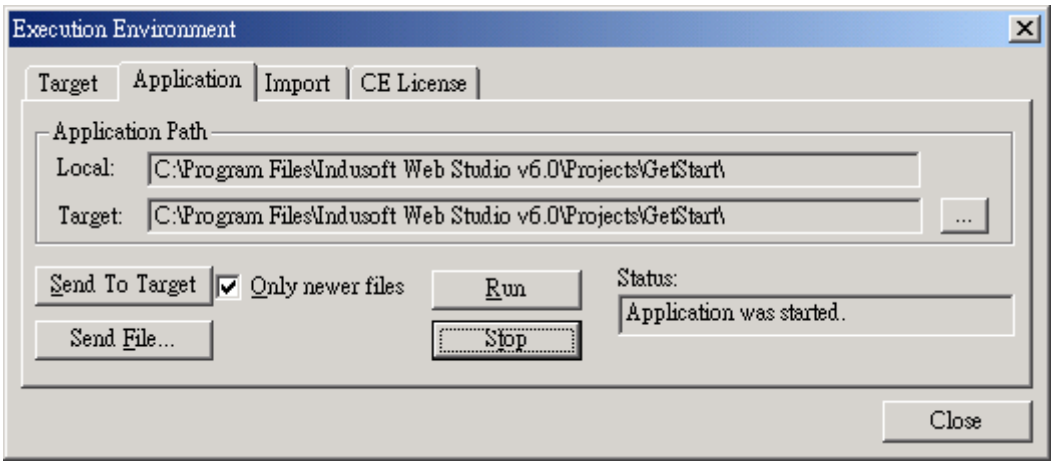


Specifying the Target Station Link Type

7. Click the Connect button to connect to the remote station.

> **Note:**
> If the remote station is a CE device, click the Install system files button to download the CEView runtime files to the remote station.

8. Return to the *Execution Environment* dialog and select the *Application* tab. Click Send to Target to download the application to the remote station.



Downloading the Application

9. After all of the application files are downloaded click Run to execute the application on the remote target station.

10. How to Register the Software License for IWS

10.1 HardKey for Development Version

This section explains how to install and upgrade Hardkey licenses for IWS (for Win NT/2000/XP).

10.1.1 Installing Hardkey Licenses for InduSoft Web Studio

To install a new IWS license, use the following steps:

1. Install InduSoft Web Studio on your computer.
2. Connect the Hardkey to the parallel port (*LPT1*) on the computer where you installed IWS.

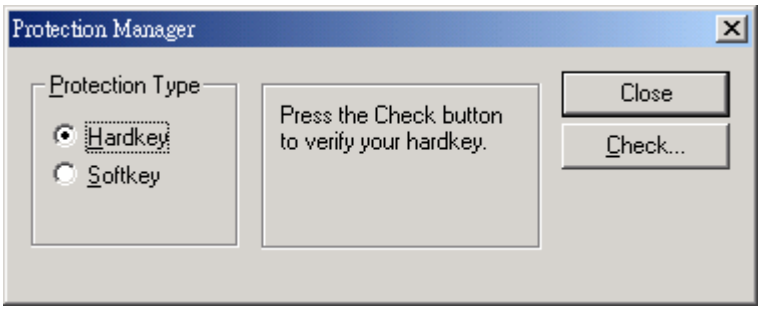
> **Caution:**
> Use caution when installing or removing a Hardkey from your computer's parallel port. We strongly recommend that you turn off the computer and disconnect it from the power supply before installing or removing the Hardkey.

3. Run *InduSoft Web Studio*.

10.1.2 Upgrading the Current License

If your Hardkey is not the exact version you have ordered. Please performs the following steps procedure to upgrade your current IWS license:

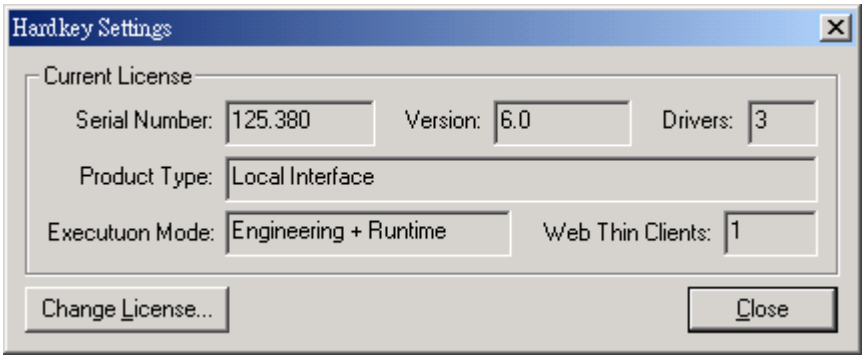
1. Close all InduSoft Web Studio development and runtime modules.
2. Ensure the Hardkey is connected to the parallel port (LPT1) on the computer where you installed IWS.
3. Execute the *Register* module by selecting Start → Programs → InduSoft Web Studio v6.0 → Register.
4. When the *Protection Manager* dialog displays (see figure), click (*enable*) the Hardkey radio button in the *Protection Type* section and click the Check button.



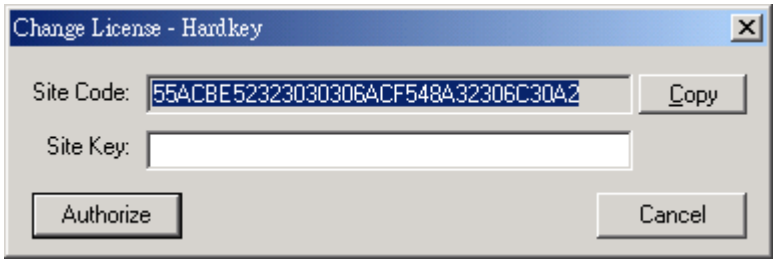
If a valid Hardkey *is not* connected to the computer's parallel port (LPT1), the following error message displays:



If a valid Hardkey *is* connected to the computer's parallel port (LPT1), the *Register* module opens the *Hardkey Settings* dialog (see the following figure), which displays the current license settings recorded on the Hardkey.



5. Click the Change License button on the *Hardkey Settings* dialog.



6. When the *Change License – Hardkey* dialog displays, **copy the code information from the** Site Code **text box and send it to ICPDAS Co., LTD((*yvonne@icpdas.com* or corresponding person)**.

7. ICPDAS will send back a *Site Key* that matches the *Site Code*. Type this Site Key into the Site Key field of the *Change License – Hardkey* dialog and then click the Authorize button.

You will be prompted to confirm the operation. If the program accepts (validates) your Site Key, the following message displays:



> **Note:**
> If your new Site Key is not valid, an error message displays. If this happens, double-check that you entered the Site Key correctly. If you entered the key correctly and still receive an error message, contact your software vendor for assistance.

You can upgrade any license setting (*Product Type*, *Execution Mode*, or *Number of Web Thin Clients*) simultaneously supported by the server, or upgrade the software version that is being supported currently. The upgrade cost will depend on your current license settings and the settings of the upgrade license.

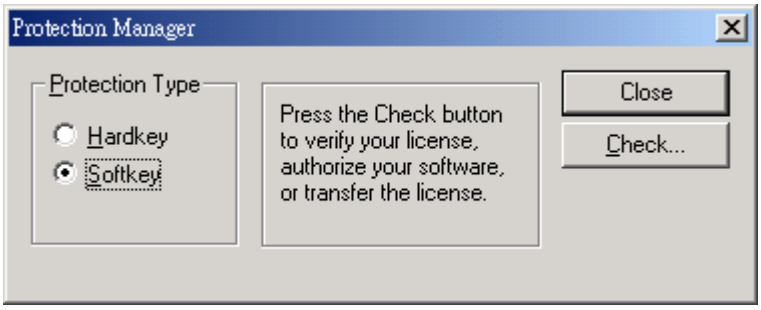
10.2 SoftKey for NT/2000/Xp Run-time Version

This section explains how to install and upgrade a SoftKey license for IWS (on Win NT/2000/XP) in run-time version.

10.2.1 Installing a SoftKey License for InduSoft Web Studio

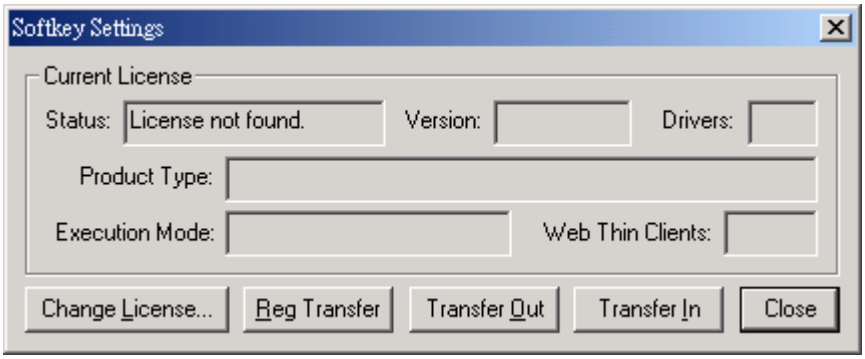
To install a new SoftKey Run-time license for IWS, use the following steps:

1. Install InduSoft Web Studio on your computer.
2. Execute the *Register* module by selecting Start → Programs → InduSoft Web Studio → Register.
3. Click (*enable*) the Softkey radio button in the *Protection Type* group, and then click the Check button.



The *Softkey Settings* dialog displays.

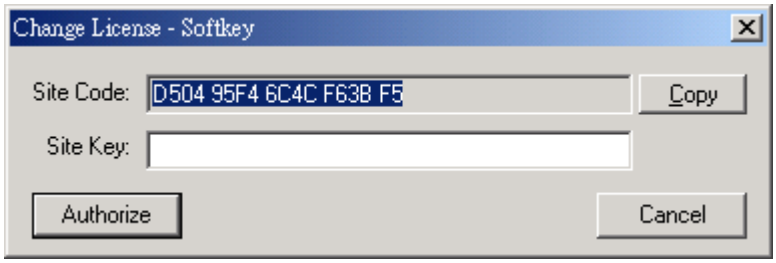
If you have not previously installed a license on your computer, the Status text box displays a License **not found** message (as shown in the following figure).



If you already have a valid InduSoft Web Studio Softkey license installed, the current license settings display.

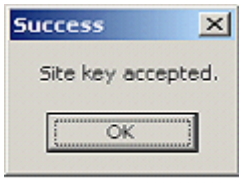
4. Click the Change License button on the *Softkey Settings* dialog.

5. When the *Change License – Softkey* dialog displays, **copy the code information from the** Site Code **text box and send it to ICPDAS CO., LTD.(*yvonne@icpdas.com* or corresponding person)**



6. ICPDAS will send back a Site Key that matches this Site Code. Type the Site Key into the Site Key field of the *Change License – Softkey* dialog and then click the Authorize button.

   You will be prompted to confirm the operation. If the program accepts (validates) your Site Key, the following message displays:



> **Note:**
> If your new Site Key is not valid, an error message displays. If this happens, double-check that you entered the Site Key correctly. If you entered the key correctly and still receive an error message, contact your software vendor for assistance.

7. Close the *Register* module and run InduSoft Web Studio.

10.3 Installing a SoftKey License for CEView

There are two ways to register a CEView license on your WinCE device:

- **Locally**: Using the *Remote Agent* from the WinCE device as the interface.
- **Remotely**: Using InduSoft Web Studio to send the license to the WinCE device.

> **Note:**
> You can purchase some WinCE devices with the CEView license already loaded. Consult your software vendor about this possibility.

10.3.1 Installing or Upgrading a License (Locally)

To install a new (or upgrade an existing) *CEView* SoftKey license (locally), use the following procedure:

1. Download the *Remote Agent* program (**CESERVER.EXE**) into the \<Non-Volatile Folder> path of the WinCE device. The \<Non-Volatile Folder> must retain this data after you re-boot the WinCE device.

> **Note:**
> The \<Non-Volatile Folder> path can vary with each WinCE device manufacturer.

After installing IWS on the WinNT/2000/XP computer, the *Remote Agent* program file (**CESERVER.EXE**) is stored in the following path:

<InduSoft Web Studio Path>\Redist\<WinCE version>\<Platform>\BIN\CESERVER.EXE

Where:

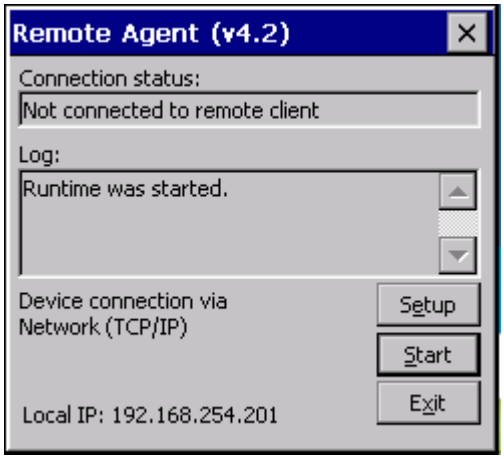
- ***<InduSoft Web Studio Path>*** is the directory where you installed IWS (for example, C:\Program Files*InduSoft Web Studio*\).
- ***<WinCE version>*** indicates the operating system version (for example, CEView for Windows CE v3.0, WinCE 4.0 for Windows CE v4.0, WinCE 4.1 for Windows CE v4.1, and so forth).
- ***<Platform>*** is the WinCE device processor type (for example, *x86*).

> **Note:**
> In some WinCE devices, the \<Non-Volatile Folder> points to a *FlashCard* memory that is connected to the device. Also, before downloading the *Remote Agent* (**CESERVER.EXE**) to your WinCE device, be sure it is not already loaded in the \<Non-Volatile Folder>.

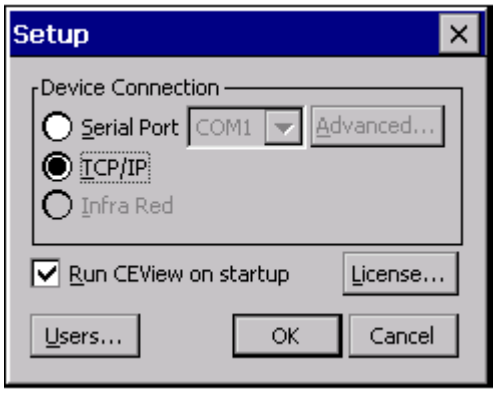
> **Tip:**
> There are several ways to download the Remote Agent program (**CESERVER.EXE**) to a WinCE device.
>
> - You can use the Microsoft ActiveSync® utility to download/upload files from a WinNT/2000/XP station to a WinCE device. You can download ActiveSync from the Microsoft Web site at no charge.
> - You can use the following command syntax to map a shared folder from a WinNT/2000/XP computer to most WinCE devices:
>
>   net use [<Local Name>] [Remote Name] [/user:<UserName>]
>
> After executing this command successfully, open a Command Prompt window and use a COPY command to copy files to the WinCE device.

> **Tip:**
> We strongly recommend that you configure the WinCE device to execute the Remote Agent program automatically when you power on the WinCE device. See the WinCE device manufacturer's documentation for information about how to configure the Startup program on the device.

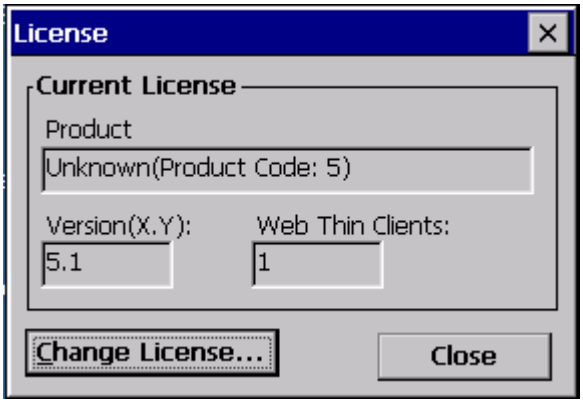
2. If the *Remote Agent* program (**CESERVER.EXE**) does not start automatically when you power on the WinCE device, you can run it manually from the \<Non-Volatile Folder>.



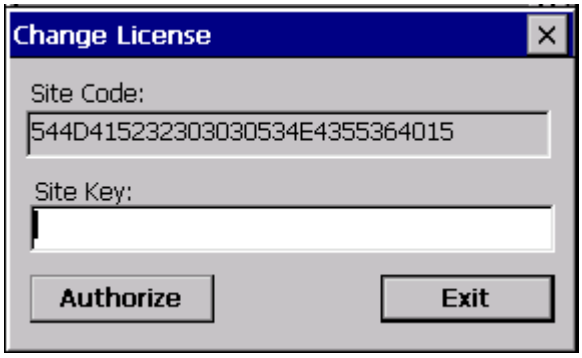
3. From the *Remote Agent* dialog, click the Setup button to open the *Setup* dialog (see following figure).



4. On the *Setup* dialog, click the License button to open the *License* dialog (as follows).



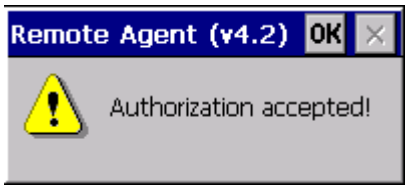
5. Click the Change License button to open the *Change License* dialog (as follows).



6. Copy the site code information (provided in the **Site Code** text box) and **send it to ICPDAS CO., LTD (*yvonne@icpdas.com* or corresponding person)**.

7. ICPDAS will send back a *Site Key* that matches this *Site Code*. Type the Site Key into the Site Key field on the *Change License* dialog, and click the Authorize button.

   If the Site Key is accepted (validated), the following message displays:



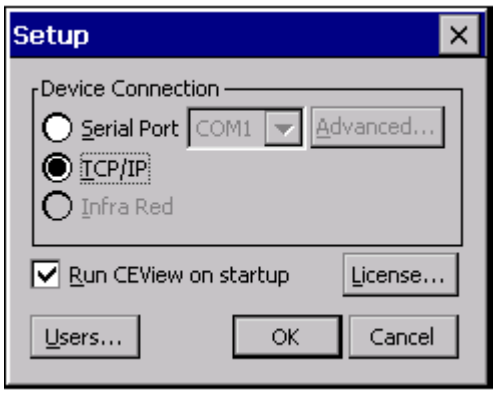
> **Note:**
> If the new *Site Key* is not validated, an error message displays. If this happens, double-check that you entered the Site Key correctly. If you typed the key correctly and get an error message, contact your software vendor for further assistance.

10.3.2 Installing or Upgrading a License (Remotely)

To install a new (or upgrade an existing) *CEView* SoftKey license (remotely), use the following procedure:

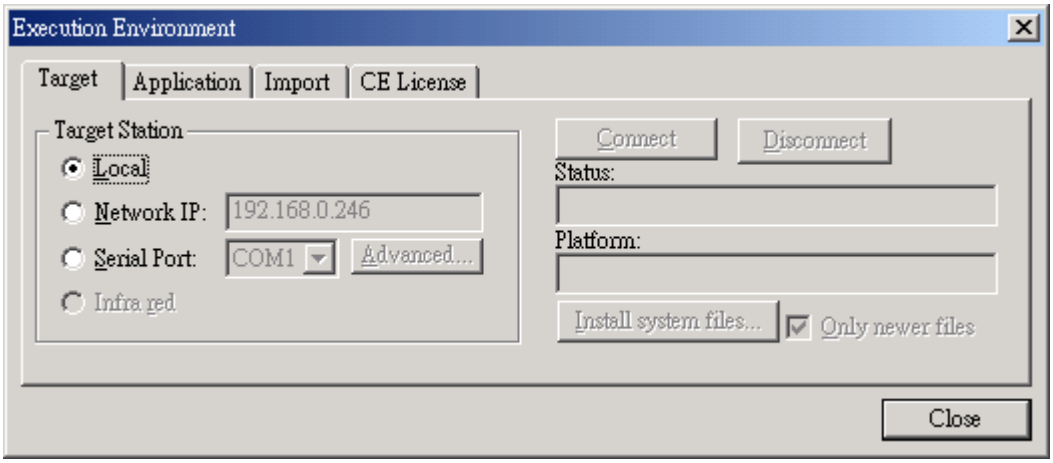
1. Execute the three first steps described in the previous section.

2. In the *Setup* dialog, specify the Device Connection type by clicking (*enabling*) the Serial Port or TCP/IP radio button. (If you enable Serial Port, you also must select a port from the combo-box list). Click OK to close the dialog.



3. Run InduSoft Web Studio on the WinNT/2000/XP station and connect this station to the WinCE device using either a serial or TCP/IP link.

4. From the IWS main menu bar, select Project → Execution Environment to open the *Execution Environment* dialog (as shown in the following figure).



5. Specify a target station by clicking one of the following radio buttons in the *Target Station*:

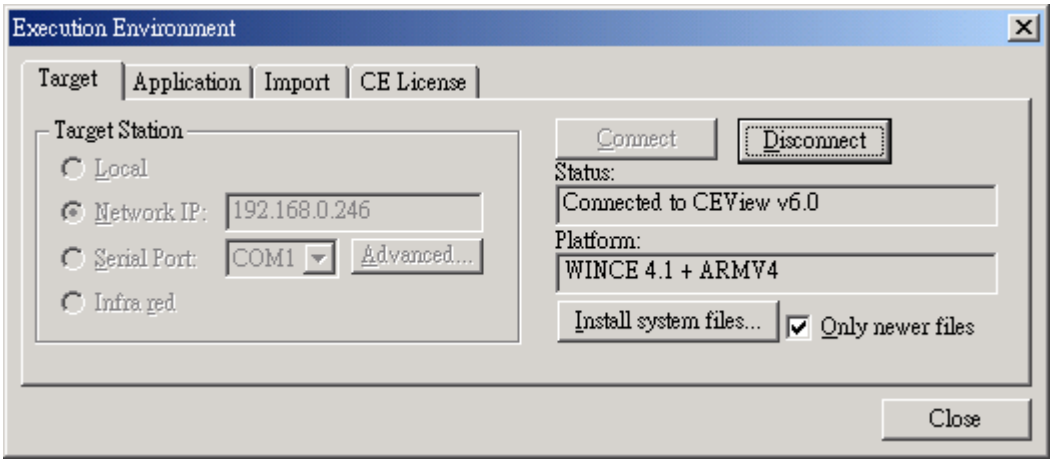
   - **Local**
   - **Network IP** and type the IP address into the field provided
   - **Serial Port** and select a port from the combo-box list provided

6. When the Connect button becomes active, click the button to connect to the WinCE device on which the *Remote Agent* is running. (If you select Network IP, you must also enter the IP address in the text box provided.)

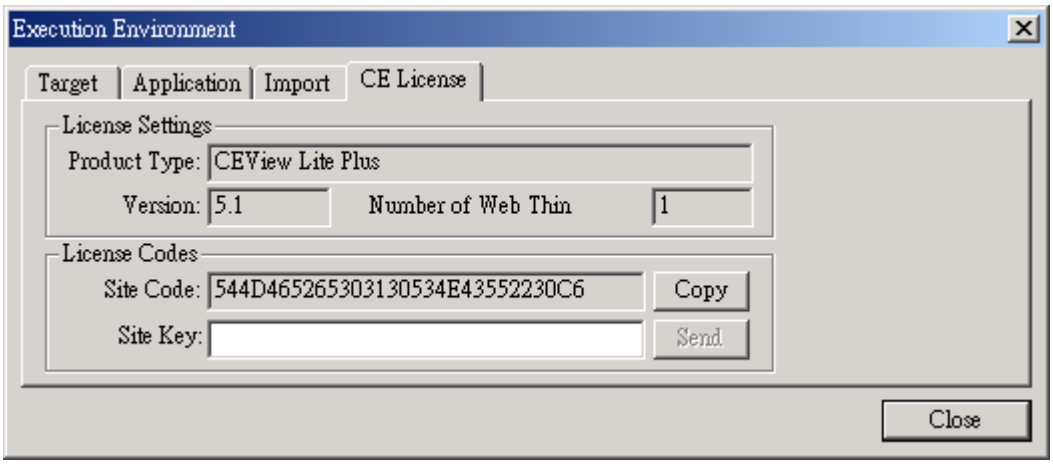
> **Tip:**
> TCP/IP links provide better communication performance than Serial links.

The Status field must display the following message:

Connected to CEView <CEView Version>



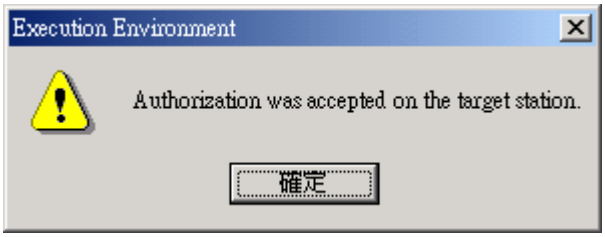
7. Select the *CE License* tab to see which license settings are currently installed on your WinCE device.



8. From the License Codes section of the *Execution Environment* dialog, **copy the information from the** Site Code **field and send it to ICPDAS CO. LTD (*yvonne@icpdas.com* or Corresponding person)**.

9. ICPDAS will send you a *Site Key* that matches this *Site Code*. Type this Site Key into the Site Key field.

10. Click the Send button to send the code to the *Remote Agent* running on the WinCE device. The *Remote Agent* program will attempt to install the new license using the Site Key sent from InduSoft Web Studio. If the Site Key is accepted (validated), the following message displays:



Note:
If the new Site Key is not valid, an error message will display. If this happens, double-check that you typed the Site Key correctly. If you entered the Site Key correctly and still receive an error message, contact your software vendor for further assistance.

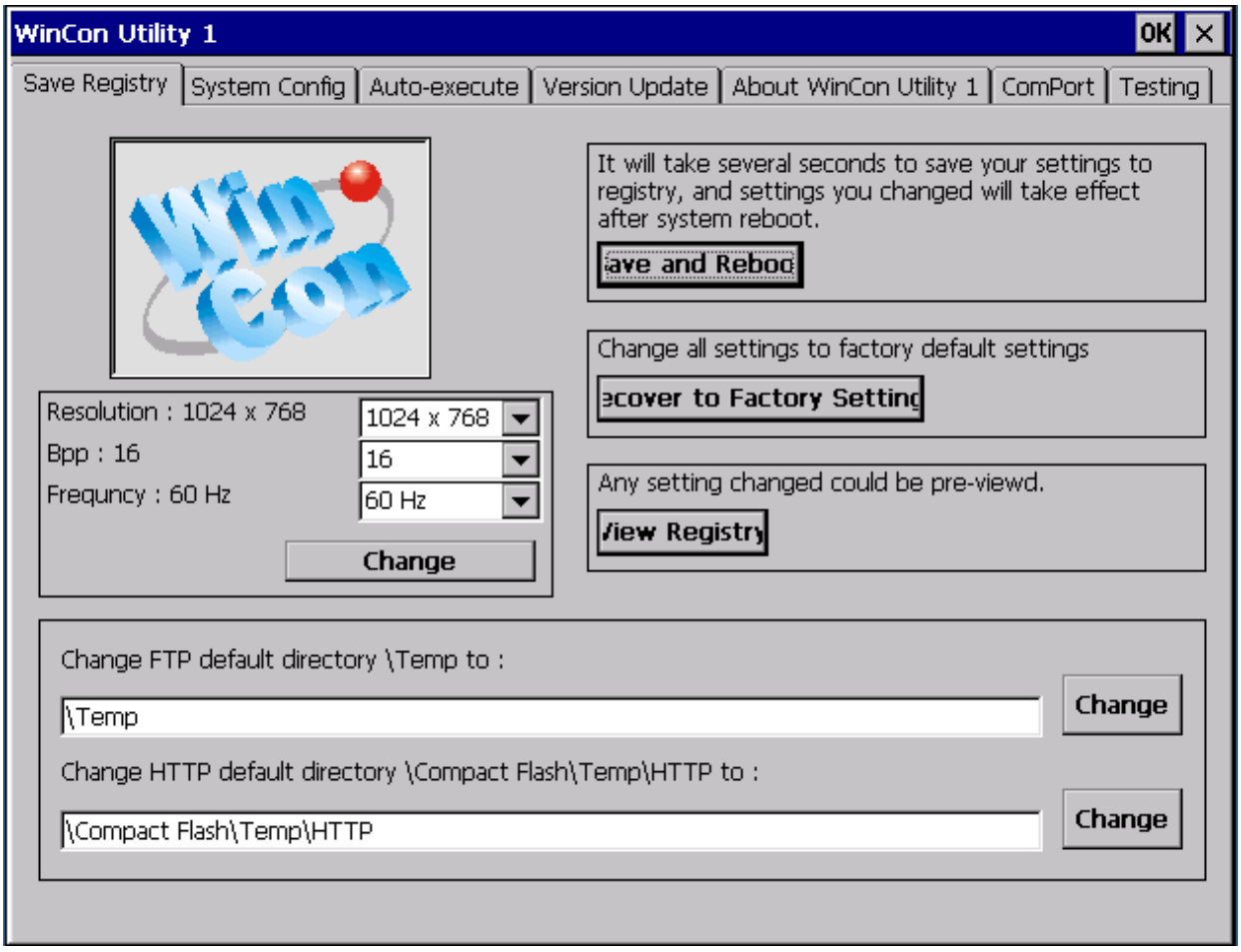
Caution:
After sending the license to the WinCE device, be sure to save its registry settings. If you do not save these settings, you will lose the license after rebooting the device.

11. Installing an InduSoft SoftKey License on the WinCon-8x39

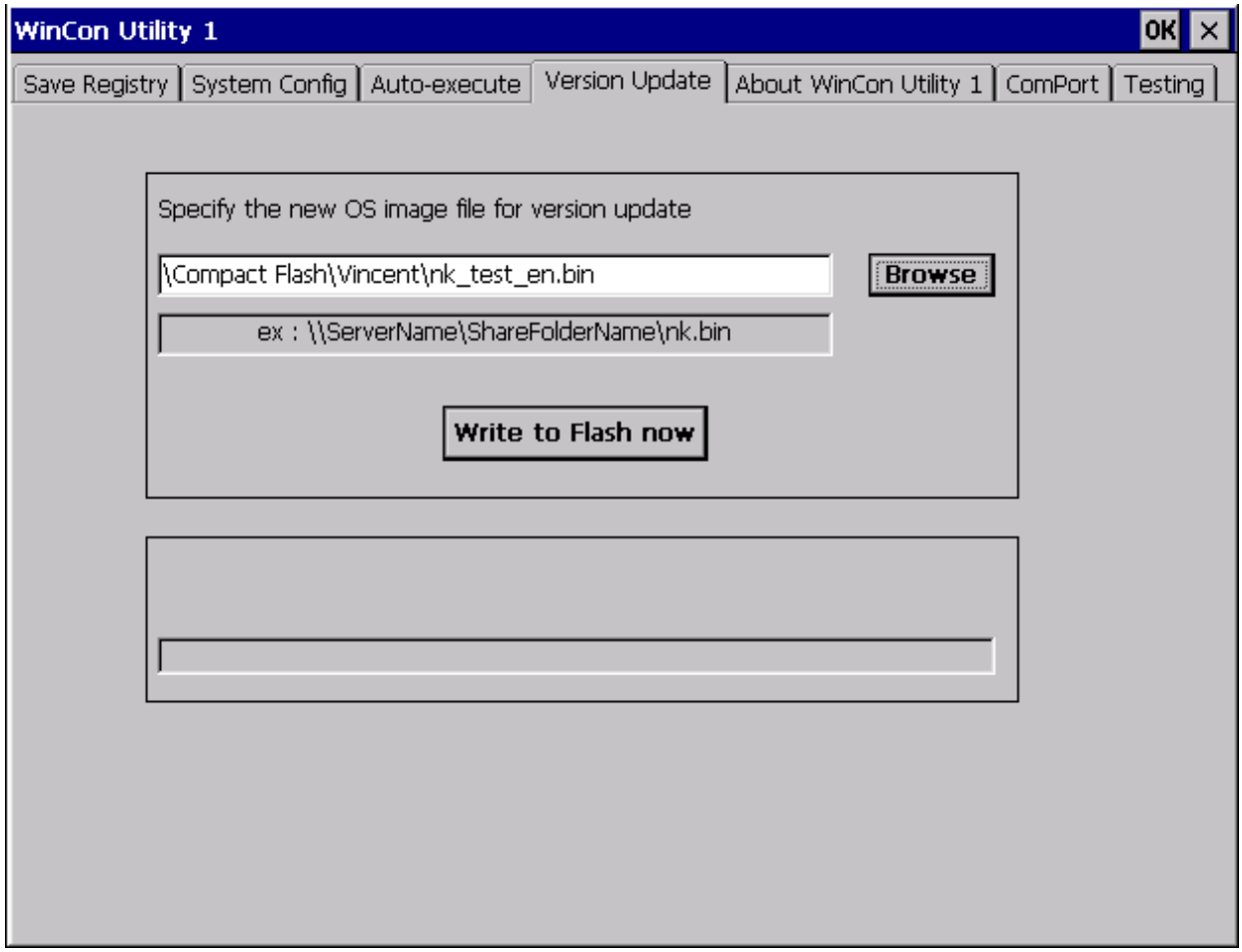
11.1 Why install an InduSoft Softkey License on the WinCon-8x39

The InduSoft Softkey license on the WinCon-8x39 is normally fully installed before users purchase the WinCon-8x39 embedded controller. Generally speaking, users should not need to install the Softkey License on the WinCon-8x39 embedded controller. However, the license needs to be reinstall if any of the following situations have occurred:

- If the “Recover to Factory Settings” button on the WinCon Utility tool application has been used.



- If the Operating System image version on the WinCon-8x39 embedded controller has been changed.



11.2 Installing an InduSoft SoftKey License on the WinCon-8x39

There are two ways to register a CEView license on your WinCon-8x39:

- **Locally**: Using the *Remote Agent* from the WinCon-8x39 embedded controller as the interface.
- **Remotely**: Using InduSoft Web Studio to send the license to the WinCon-8x39 embedded controller.

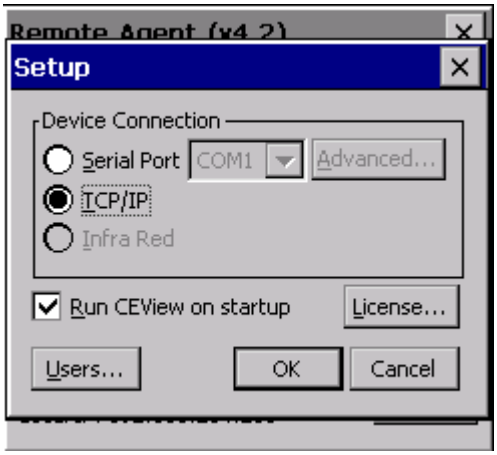
11.2.1 Installing or Upgrading a License Locally

To install a new (or upgrade an existing) *CEView* SoftKey license locally, use the following procedure:

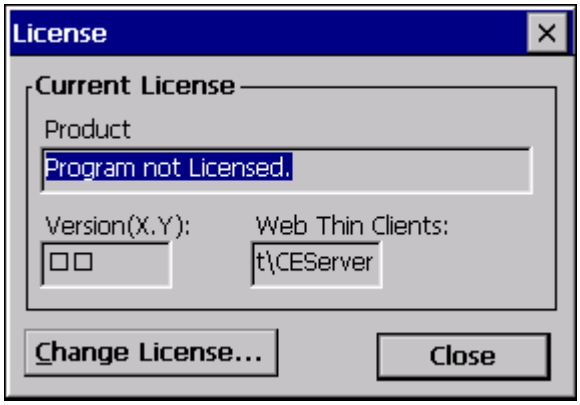
1. If the “Remote Agent” program (CESERVER.EXE) does not start automatically when powering on the WinCon-8x39 embedded controller, you can run it manually from the \Compact Flash\Indusoft\ folder. From the “Remote Agent” dialog box, click the “Setup” button to open the Setup dialog.



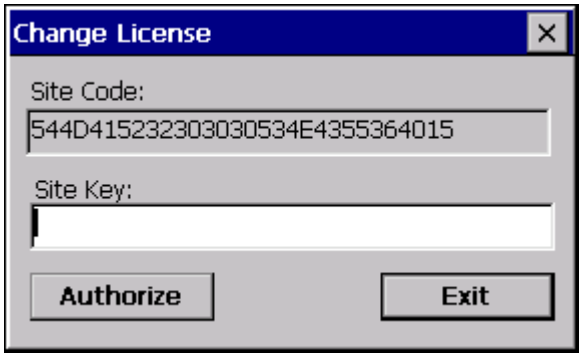
2. In the “Setup” dialog box, click the “**License**” button to open the License dialog.



3. Click the “**Change License**” button to open the “Change License” dialog.



4. Once the “Change License” dialog box is open, the cursor will be located in the “Site Key” field.

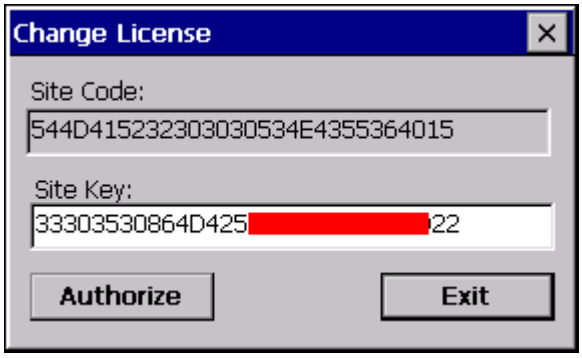


5. To find the Site Key, open the Memo cover on the WinCon-8x39 embedded controller as shown in the diagram below.

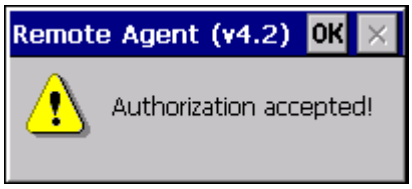
> **Note:**
> If you need help identifying the Site Key, please copy the Site Code information shown in the "Site Code" field of the "Change License" dialog box and send it to ICP DAS.



6. ICP DAS provides the "Site Key" information matching the "Site Code" on the Memo cover. Carefully enter the Site Key information into the "**Site Key**" field of the "Change License" dialog box and then click the "**Authorize**" button.

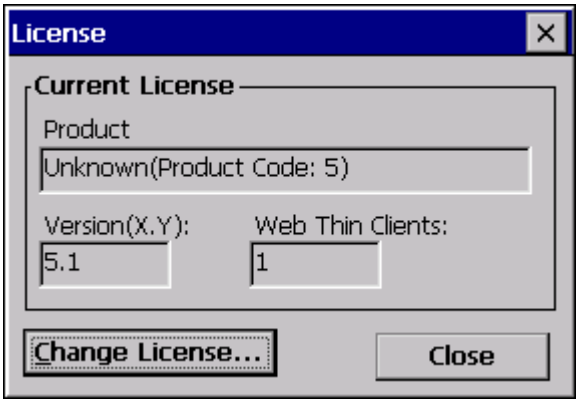


If the Site Key is accepted (validated), the following message will be displayed. Click the "OK" button to continue.

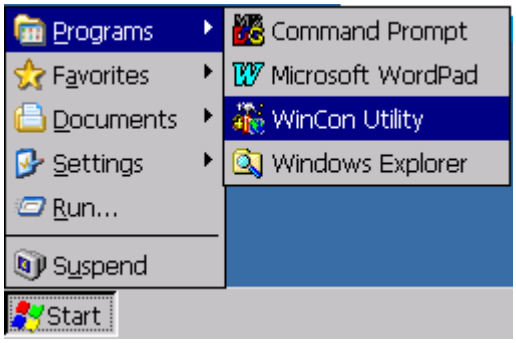


Note:
If the "Site Key" is not validated, an error message will be displayed. If this happens, double-check that you correctly entered the Site Key information. If you entered the Site Key correctly and still receive an error message, contact ICP DAS for further assistance.

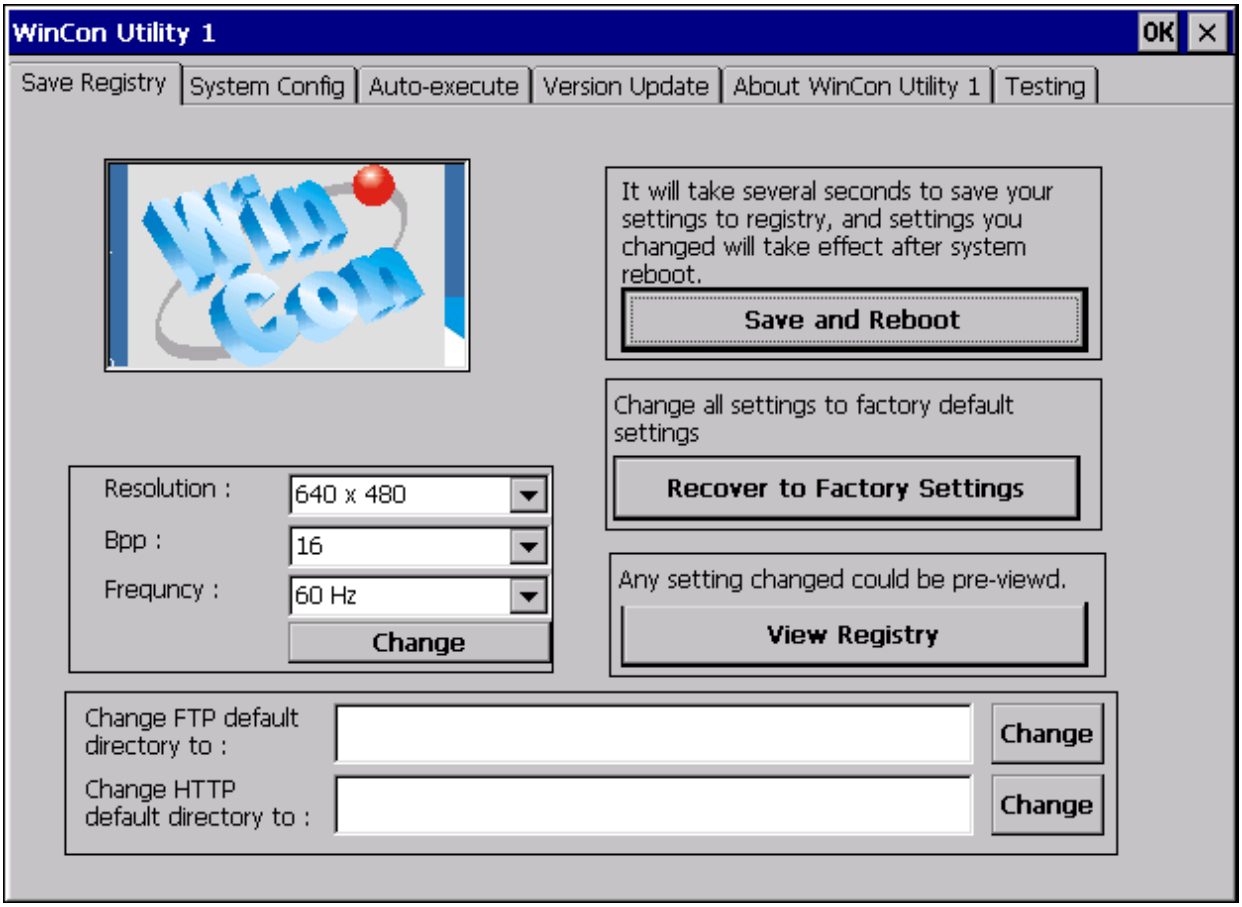
If you successfully have a valid InduSoft Web Studio Softkey license installed, the current license settings will be displayed. Close the "Remote Agent" program.



7. Select Start → Programs → WinCon Utility on the WinCon-8x39 embedded controller to run the WinCon Utility.



8. In the “WinCon Utility 1” dialog box, click the “**Save and Reboot**” button to save the License information into the WinCon-8x39 registry.



9. Click the “Yes” button to save the new settings.



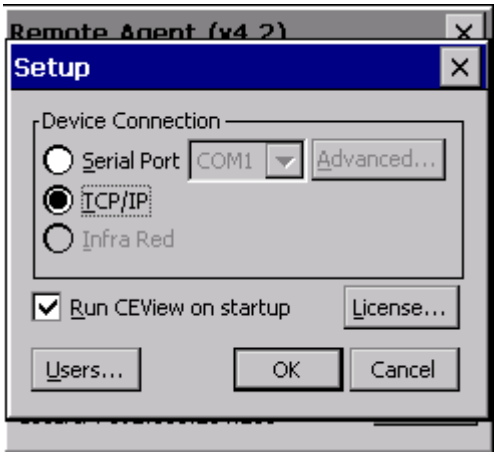
> **Note:**
> It normally takes about 10-15 seconds to store the new settings into the internal nonvolatile memory.

11.2.2 Installing or Upgrading a License Remotely

To install a new (or upgrade an existing) *CEView* SoftKey license remotely, use the following procedure:

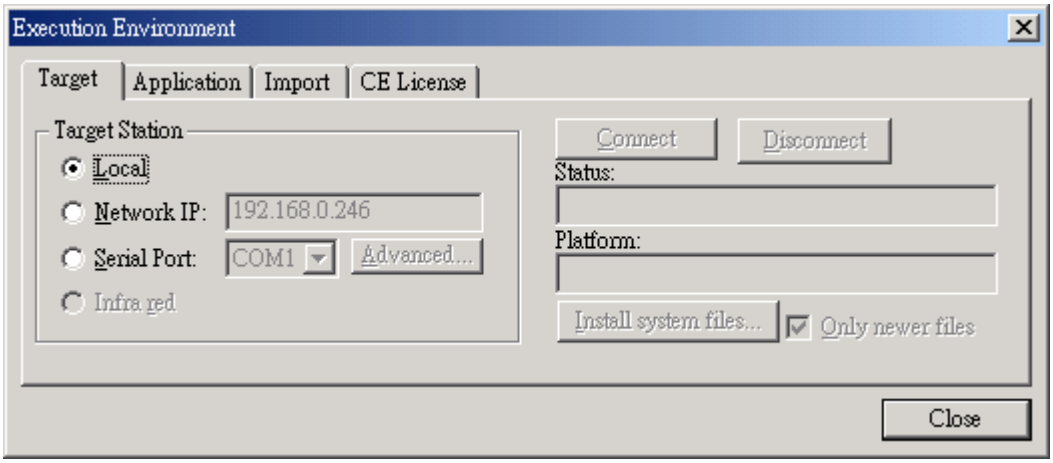
1. Execute the three first steps as described in the previous section.

2. In the "Setup" dialog, specify the **Device Connection** type by clicking (*enabling*) the **Serial Port** or **TCP/IP** radio button. (If you enable **Serial Port**, you must also select a port from the combo-box list). Click **OK** to close the dialog.



3. Run InduSoft Web Studio on the WinNT/2000/XP workstation and establish a connection to the WinCon-8x39 embedded controller using either a serial or TCP/IP link.

4. From the InduSoft Web Studio main menu bar, select **Project** → **Execution Environment** to open the "Execution Environment" dialog box.



5. Specify a target station by clicking one of the following radio buttons in the “Target Station” section:

   - **Local:** The local workstation
   - **Network IP:** Type the IP address of the WinCon-8x39 embedded controller into the field provided
   - **Serial Port:** Select a port from the combo-box list provided

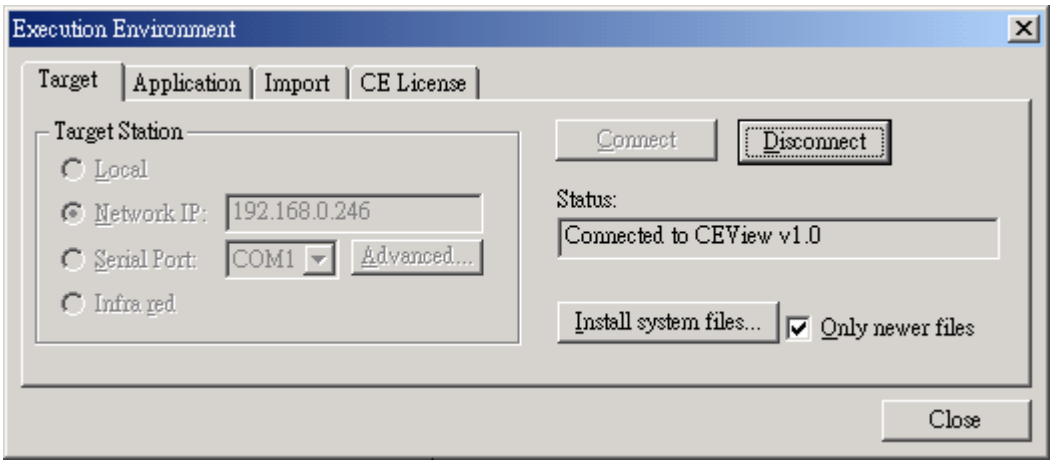
6. Once a selection has been mode, the “**Connect**” button becomes active. Click the button to connect to the WinCon-8x39 embedded controller on which the “Remote Agent” is running.

> **Note:**
> If you select Network IP, you must also enter the IP address of the WinCon-8x39 embedded controller in the text box provided.

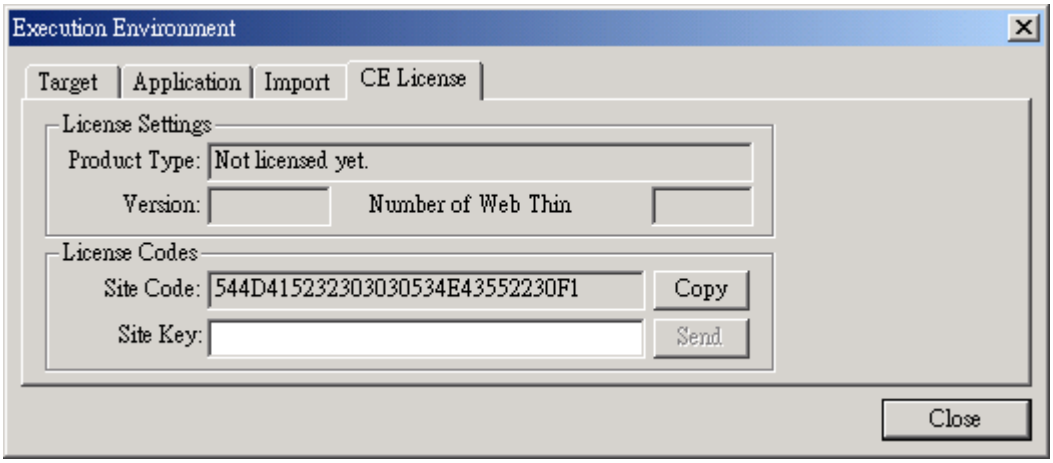
> **Tip:**
> TCP/IP links provide better communication performance than Serial links.

7. Once a connection has been established, the “**Status**” field will display the following message:

   Connected to CEView <CEView Version>



8. Select the *CE License* tab to determine which license setting is currently installed on your WinCon-8x39 embedded controller.

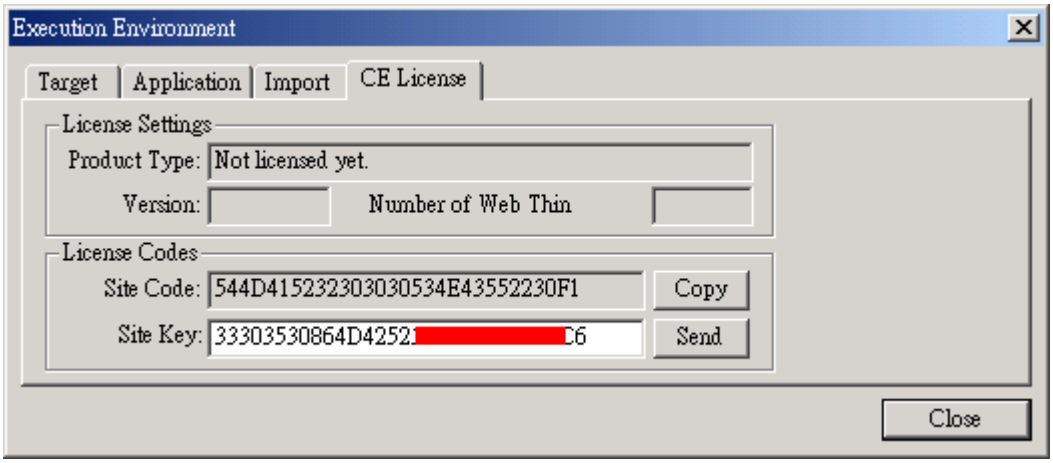


9. At this point, the “Site Key” field will be empty. To determine the “Site Key” information, open the Memo cover on the WinCon-8x39 embedded controller as shown in the diagram below.



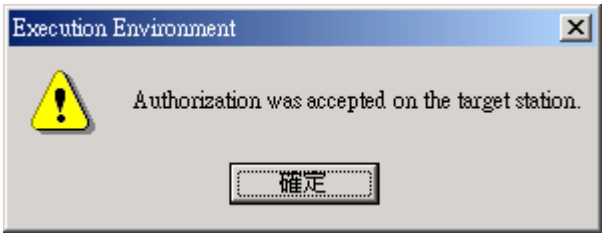
> **Note:**
> If you need help identifying the SiteKey, please copy the Site Code information shown in the “Site Code” field in the **License Codes** section of the Execution Environment dialog and send it to ICP DAS.

10. ICP DAS provides the “Site Key” information matching the “Site Code” on the Memo cover. Carefully enter the Site Key information into the “**Site Key**” field as shown below.



11. Click the “Send” button to send the code to the **Remote Agent** running on the WinCon-8x39 embedded controller.

12. The **Remote Agent** program will attempt to install the new license using the Site Key sent from InduSoft Web Studio. If the Site Key is accepted (validated), the following message will be displayed. Click the OK button to continue.



Note:
If the Site Key is not validated, an error message will be displayed. If this happens, double-check that you correctly entered the Site Key information. If you entered the Site Key correctly and still receive an error message, contact ICP DAS for further assistance.

Caution:
After sending the license to the WinCon-8x39 embedded controller, be sure to save the registry settings. If you do not save these settings, you will lose the license after rebooting the device. Refer to the two last steps in the previous section for details of how to set the WinCon-8x39 embedded controller registry.

12. Revision History

Revision	Author	Date	Comments
1.0	Troy Su	Feb 20, 2004	Initial revision